"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

TP 1400
TP 3600

25523
S/[illegible]/61/000/002/002/017
E031/E133

Author: [illegible], V.V., Polyakov, N.F., and Shcherbak, Ya.S.

Title: The profile of a thin wing having minimum mean coefficient of heat transfer for given lift

Periodical: Izvestiya vysshikh uchebnykh zavedeniy. Aviatsionnaya tekhnika, 1961, No.2, pp. 17-24

Abstract: The mean coefficient of heat transfer depends, basically, on the local parameters of the flow at the outer edge of the boundary layer. In addition to determining the lift coefficient of the wing, the angle of attack and the form of the profile influence the local parameters of the flow. The problem stated in the title is solved under the following simplifying assumptions: 1) the profile is thin; 2) the upper and lower surfaces of the profile are thermally insulated; 3) the boundary layer is either completely laminar or completely turbulent. Since the profile is thin, the pressure is given, in the first approximation, by linearised theory. The lift coefficient is determined by integrating the local angle of attack along the mean chord of the profile. The mean coefficient of heat transfer is obtained by integrating the coefficients of heat

Card 1/3

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24523

[illegible] profile of a thin wing having [illegible] 80571/E113

transfer for the upper and lower surfaces of the profile. In the first approximation the local coefficients of heat transfer on the profile at small angles of attack can be obtained from the corresponding expressions for a flat plat if values of the parameters appropriate to the outer edge of the boundary layer are used. This approach was used by [illegible] (Ref. 5) [illegible] review of some recent investigations in the field of flows with high supersonic speeds, Russian transl., 1956) for the case of a turbulent boundary layer. In the present paper the coefficient of heat transfer as obtained by the method of F. Gaines and R. Managan (Ref. 1. The determination of skin temperatures attained in high speed flight. U.S.C.A.F. No. 143, 1955), using local values of the flow parameters. In accordance with the above formulation, the problem is of the classical isoperimetric type in the calculus of variations and, as such, is solved using a lagrangian multiplier and setting up the Euler equation. In this problem the functional does not depend on the independent variable and so the equation can be integrated at once. The pressure can be obtained as an implicit function of the distance along the chord. The lift coefficient is obtained by numerical integration of the pressure distribution and the shape

Card 2/3

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of the profile is determined by integrating angle of attack of the mean chord of the profile. Since the pressure was originally defined in terms of the angle of attack, and the pressure is now known, this integration can be effected. The coefficient of heat transfer depends strongly on the temperature but, by consideration of the two limiting regimes: 1) long steady flight without heat radiation, and 2) instantaneous start at a given height and Mach number. It is shown that temperature has little effect on the shape of the optimum profile, so that the profile is optimum for all intermediate surface temperatures.
There are 5 figures and 5 references: 1 English and 4 Russian translations of western literature. The English language reference reads as follows:
Ref.1: F. Davies, B. Managan. The determination of skin temperatures attained in high speed flight. A.R.C.C.P. No.123. 1953.

SUBMITTED: July 16, 1960

Card 3/3

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

L 11107-66 EWT(d)/FS(m)/EWT(1)/EWP(m)/EWT(m)/EWP(w)/ETC(F)/EPF(n)-2/EWG(m)/
ACC NR: AP6003183 T-2/EWP(k)/FCS(k)/EWA(h) SOURCE CODE: UR/0147/65/000/004/0052/0061
ETC(m)/EWA(1) WW/EM

AUTHOR: Polyakov, M. B.; Shcherbak, Ya. S.

ORG: none

TITLE: Thin profile of a supersonic wing with a minimum average heat-transfer coefficient at given aerodynamic characteristics

SOURCE: IVUZ. Aviatsionnaya tekhnika, no. 4, 1965, 52-61

TOPIC TAGS: aerodynamics, aerodynamic heating, heat transfer, heat transfer coefficient, thin wing, supersonic flow, aerodynamic characteristic

ABSTRACT: This paper deals with the problem of determining the optimum shape of a supersonic wing with given aerodynamic characteristics (lift, total drag, lift-drag ratio, etc.) which minimizes the average heat-transfer coefficient. The problem is reduced to determining the function $y = y(x)$ of the characteristic line of a thin profile which ensures the extremum of the functional of the average heat-transfer coefficient at given values of drag coefficients. This isoperimetric variational problem is solved by using indeterminate Lagrange multipliers. The solution is presented for the case when lift and drag are given, from which the solutions of other particular problems may be obtained. It is assumed that the lower and upper surfaces of the thin profile are thermally insulated from each other and that the boundary layer is totally laminar or totally turbulent. The

Card 1/2 UDC: 533.601.155

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L 11107-66

ACC NR: AP6003183

local heat-transfer coefficients on a slightly cambered profile were determined by substituting the local flow parameters in the formulas obtained for an isothermal "plate" at zero angle of attack. The results of calculations made by using the formulas obtained by F. Davies and R. Monaghan are given in graphs and analyzed. [AB]
Orig. art. has: 4 figures and 39 formulas.

SUB CODE: 20/ SUBM DATE: 07Dec64/ ORIG REF: 002/ OTH REF: 002/ ATD PRESS: 4176

Card 2/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

L 47161-66 FS(m)/EWT(1)/T-2

ACC NR: AR6000713 SOURCE CODE: UR/0124/65/000/009/B090/B090

AUTHORS: Polyakov, M. B.; Shcherbak, Ya. S.

TITLE: Thin profile of supersonic airfoil with minimum average heat transfer coefficient for given aerodynamic characteristics

SOURCE: Ref. zh. Mekhanika, Abs. 9B602

REF SOURCE: Dokl. 3-y Sibirsk. konferentsii po matem. i mekhan., 1964. Tomsk, Tomskiy un-t, 1964, 336-337

TOPIC TAGS: supersonic flow, airfoil, heat transfer coefficient, skin friction, FRICTION COEFFICIENT

ABSTRACT: The formulation and solution of the isoperimetric variational problem is given to determine the shape of a supersonic airfoil cross section which will ensure a minimum average heat transfer coefficient for given aerodynamic characteristics. The solution is given for Mach numbers 7--8; the flow is assumed either fully laminar or turbulent, where the local friction and heat transfer coefficients are calculated using flat plate formulae including local magnitudes for the flow parameters. The calculations show that, in comparison with the flat plate, the maximum local heat transfer coefficient is lowered by 80--85% and the average heat transfer coefficient by 15%. A. M. Gubertov [Translation of abstract]

SUB CODE: 20

Card 1/1

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

FOL'MAKOV, M. D.

Some practical problems of the aluminium founding and its alloys. Kharkiv, Derzh. naukovo-tekhn. vyd-vo Ukrainy, 1937. (Mic 53-278) Collation of the original as determined from the film: 65 p.

Microfilm TJ-4

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

POLYAKOV, M.F.

Use of filter presses for mash filtration. Khar.prom. no.1:36-40 Ja-Mr '62. (MIRA 15:8)

1. Kiyevskiy pivovarennyy zavod No.1.
(Kiev--Brewing industry--Equipment and supplies)
(Filters and filtration)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

POLYAKOV, M.F.

Use of sedimentation centrifuges for the separation of brewery mash. Khar.prom. no.3:35-40 Jl-S '62. (MIRA 15:8)
(Separators (Machines))
(Brewing industry--Equipment and supplies)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

POLYAKOV, M.F.; KONSTANTINOVSKIY, G.M.[Konstantinovs'kyi, H.M.]; YEMEL'YANOVA, N.O. [IEmel'ianova, N.O.]

Use of synthetic adhesives for pasting labels on beer bottles. Khar. prom. no.1:56-57 Ja-Mr '65. (MIRA 18:2)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

66385

9,2400 SOV/144-58-12-16/19

AUTHOR: Polyakov, M.G., Docent

TITLE: An Equipment for the Ageing and Testing of Gas-discharge Tubes and Thyratrons

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Elektromekhanika, 1958, Nr 12, pp 131-141 (USSR)

ABSTRACT: The equipment described was devised at one of the industrial establishments of the town of Frunze. The aim of this work was to produce a device for cleaning the surface of the anode in gas-discharge tubes and thyratrons in order to secure high inverse peak voltages. The equipment is illustrated diagrammatically in Fig 1. The tube to be aged, 19, is inserted into the equipment and supplied with a heater current which can be controlled by means of the auto-transformer, 3. When the cathode is sufficiently hot, an anode voltage is applied to the tube from the auto-transformer, 4. The capacitors 9 and 10 which are connected in series, become charged. When the anode of the tube becomes negative during the second half of the cycle, the negative voltage appearing across the tube is almost twice the voltage of the transformers. During the ageing, the voltage applied to the anode is low

Card 1/2

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66385
SOV/144-58-12-16/19

An Equipment for the Ageing and Testing of Gas-discharge Tubes and Thyratrons

at first; as the anode is gradually cleaned, the voltage is increased. The anode current is limited by inserting two resistors, 11 and 12, into the anode circuit. There are 1 figure and 1 Soviet reference.

ASSOCIATION: Kafedra elektrifikatsii promyshlennykh predpriyatiy, Frunzenskiy politekhnicheskiy institut (Chair of Electrification of Industrial Undertakings, Frunze Polytechnical Institute)

Card 2/2

SUBMITTED: December 4, 1958

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

POLYAKOV, M.G.

SOV/137-58-8-16871

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 8, p 93 (USSR)

AUTHORS: Boyarshinov, M.I., Polyakov, M.G.

TITLE: A Rational System of Pass Grooving for the Rolling of Copper-clad Steel Wire Rods (Ratsional'naya sistema kalibrovki dlya prokatki medestal'noy katanki)

PERIODICAL: Tr. Nauchno-tekhn. o-va chernoy metallurgii. Ukr. resp. pravl., 1957, Vol 2, pp 193-207

ABSTRACT: A study is made of the change in shape of clad metal and its components in various systems of rough reducing and finishing passes for the rolling (R) of copper-clad steel wire rods. It is established that the resistance to deformation (RD) of the clad metal in R flat samples on smooth rolls approximates the mean of the RD of steel and Cu, although it is somewhat above that figure. With equal reductions and cross sections, the RD of the clad metal is virtually identical in various passes (oval-oval, square-square, etc.). The spread of the clad metal was, in all the pass systems tested, less than the spread of Cu and steel, and in R on a smooth roll it was halfway between that of the two or exceeded them (depending upon the reduction). The

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A Rational System of Pass Grooving for the Rolling (cont.)

outer, Cu, layer, undergoes less reduction than the steel core and displays less spread; spread is either lacking or is of measurable negative value. When drafts are small, the core does not acquire the shape of the pass, and this causes the Cu to overflow into the shell, causing forces to develop that bend the shell at the pass parting lines. The phenomenon of overflow, depending upon the unevenness of deformation across the height of the pass, may be employed to thicken the Cu layer in the required location by the use of adjacent passes of different shape or by R an oval strip in a subsequent oval horizontal pass without tilting. The best system of passes for production of high-quality copper-clad steel rods is the oval-oval followed by a square-oval-round series of passes.

V.D.

1. Rods---Production 2. Steel---Coatings
3. Copper coatings 4. Rolling mills---Operation

Card 2/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

LAZARENKO, A.S., redaktor; GZHITS'KIY, S.Z., redaktor; KIYAK, G.S., redaktor; KOZIY, G.V., doktor biologichnikh nauk, redaktor; BARANETS'KIY, S.F., kandidat s.-g. nauk, redaktor; STRAUTMAN, F.I., kandidat biol.nauk, redaktor; TATARINOV, K.A., redaktor; POLYAKOV, M.I., redaktor; RAKHLINA, N.P., tekhnicheskiy redaktor.

[Biochemistry of farm animals] Biokhimiia sil's'kohospodars'kykh tvaryn. Kyiv, 1953. 58 p. [Microfilm]. (MLRA 9:6)

1.Akademiya nauk URSR, Kiev. Institut agrobiologii.2.Chlen-korespondent AN URSR (for Lazarenko, Gzhits'kiy, Kiyak).
(Physiological chemistry) (Veterinary physiology)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

ZINOV'YEVA, Khristina Gavrilovna; BERSHOVA, Ol'ga Ippolitovna; RUBENCHIK, L.Y., vidpovidal'niy redaktor; POLYAKOV, M.I., redaktor vidavnitstva; KORMILO, M.T., tekhnicheskiy redaktor

[Azotobacterin and its use in Ukrainian collective farms] Azotobakteryn i ioho zastosuvannia v kolhospakh Ukrainy. Kyiv, Vyd-vo Akademii nauk URSR, 1956. 24 p. (MLRA 10:2)

1. Chlen-korrespondent Akademii nauk URSR (for Rybenchik)
(Azotobacter) (Soil inoculation)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

VUICH, T.M.; YEMEL'YANOVA, I.S.; ISKANDARYAN, A.K.; KURMAYEVA, R.Kh.; POLYAKOV, M.I.

[English-Russian dictionary of terms in meat and meat products technology] Anglo-russkii slovar' terminov po tekhnologii miasa i miasoproduktov. Moskva, 1960. 44 p, (MIRA 17:3)

1. Moscow. Vsesoyuznyy nauchno-issledovatel'skiy institut myasnoy promyshlennosti.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

BURDENKO, Anatoliy Alekseyevich[deceased]; Prinimal uchastiye POLYAKOV, M.I., master sporta; GULEVICH, I.D., red.; KRASAVINA, A.M., tekhn. red.

[Sport shooting of flying targets; methodological manual] Sportivnaia strel'ba vlet; metodicheskoe posobie. Moskva, Voenizdat, 1962. 247 p. (MIRA 15:8)
(Trapshooting)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

POLYAKOV, M.I., inzh.

Characteristics of the coal and gas outburst in the Artem No.10 Mine. Bezop.truda v prom. 4 no.8:6-7 Ag '60. (MIRA 13:8)

1. Nachal'nik Voroshilovskoy rayonnoy gornotekhnicheskoy inspektsii.
(Voroshilovgrad Province—Coal mines and mining)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

RUSOL, S.P., inzh.; POLYAKOV, M.I., tekhnik

Thermomechanical continuous lime slaking unit. Suggested by S.P.Rusol, M.I.Poliakov. Rats.i izobr.predl.v stroi. no.14: 66-68 '60. (MIRA 13:6)

1. Po materialam Byuro tekhnicheskoy pomoshchi Upravleniya stroitel'stva sovnarkhoza Moldavskoy SSR, Kishinev, ul.Pushkina, 26.
(Lime industry--Equipment and supplies)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

POLYAKOV, M.I., inzhener.

Introduction of automatic production processes. Sel'khozmashina no.5:27-28 My '57. (MLRA 10:5)
(Bolts and nuts)
(Automatic machinery)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

1. POLYAKOV, M. V.

2. USSR (600)

"Distortions Due to Seismologic Equipment."

Prikladnaya geofizika, Issue 4, 1948 (133-158)

9. Meteorologiya i Gidrologiya, No. 3, 1949.
[redacted] Report U-2551. 30 Oct 52

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

VERBUK, R.M.; GAYDUCHENKO, N.P.; KRIVOKOBYL'SKIY, V.F.; POLYAKOV, M.L.; CHICHEVA, L.I., red.; TRUKHINA, O.N., tekhn. red.; [redacted]OKOLELOVA, Z.P., tekhn. red.

[Dismantling, assembly and repair of SMD engines] Razrabotka, sborka i remont dvigatelei SMD. Moskva, Sel'khozizdat, 1963. 174 p. (MIRA 16:9)
(Diesel engines--Maintenance and repair)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

ANTIPOV, V.V., kand. tekhn. nauk; POLYAKOV, M.L., inzh., retsenzent; SAVKIN, I.P., inzh., red.

[Wear of precision parts and the disturbance of the performance of a diesel-engine fuel system] Iznos pretsizionnykh detalei i narushenie kharakteristiki toplivnoi apparatury dizelei. Moskva, Mashinostroenie, 1965. 130 p. (MIRA 18:7)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

POLYAKOV, M.L., inzh.

Assurance of reliable operation of the jets of tractor diesel engines. Trakt. i sel'khozmash. 32 no.6:6-9 Je '62. (MIRA 15:6)

1. Khar'kovskiy traktornyy zavod.
(Diesel engines)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

L 08096-67 EWT(1) DE/FIN

ACC NR: AP6029949 (A,N) SOURCE CODE: UR/0413/66/000/015/0124/0124

INVENTOR: Gurlyand, A. D.; Polyakov, M. L.

42
13

ORG: none

TITLE: Diesel-fuel injector. Class 46, No. 184563

SOURCE: Izobret prom obraz tov zn, no. 15, 1966, 124

TOPIC TAGS: fuel injector, fuel atomizer, diesel engine

ABSTRACT: An Author Certificate has been issued for a diesel-fuel injector containing a spray nozzle in which is a flat spring-supported valve which interacts with a seat. For greater dependability and to prevent the clogging of the spray nozzle, the valve has a circular suction belt. Another version of this injector provides better hermetic sealing. The valve seat, for this purpose, is outfitted with a circular, 0.15—0.20-mm wide contact surface. Orig. art. has: 1 figure. [SA]

SUB CODE: 21/ SUBM DATE: 16Aug65

Card 1/1 Mle

UDC: 621.43.038.3

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

POLYAKOV M.M.

4

USSR

Transl.No. & Country

Author

153
CT/1056
U.S.S.R.

The Adsorption of Benzene and Methanol Vapours on Carbon Black

M.M. Polyakov
F.A. Tesner

Dokl.Akad.Nauk,93(5),855-858, 1953

Note: Application for this translation should be made to The Librarian, Chemical Defense Experimental Establishment M.O.S., Porton, Nr. Salisbury, Wilts

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

POLYAKOV, M.M., inzh.

Characteristics of shipbuilding with underwater wings. Sudostroenie 25 no.7:32-36 Jl '59. (MIRA 12:12)
(Shipbuilding--Supplies)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

POLYAKOV, M.M., inzh.

Development of cyclic schedules in shipbuilding. Sudostroenie 25 no.8:46-50 Ag '59. (MIRA 13:2)
(Shipbuilding)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

POLYAKOV, M.M., assistent.

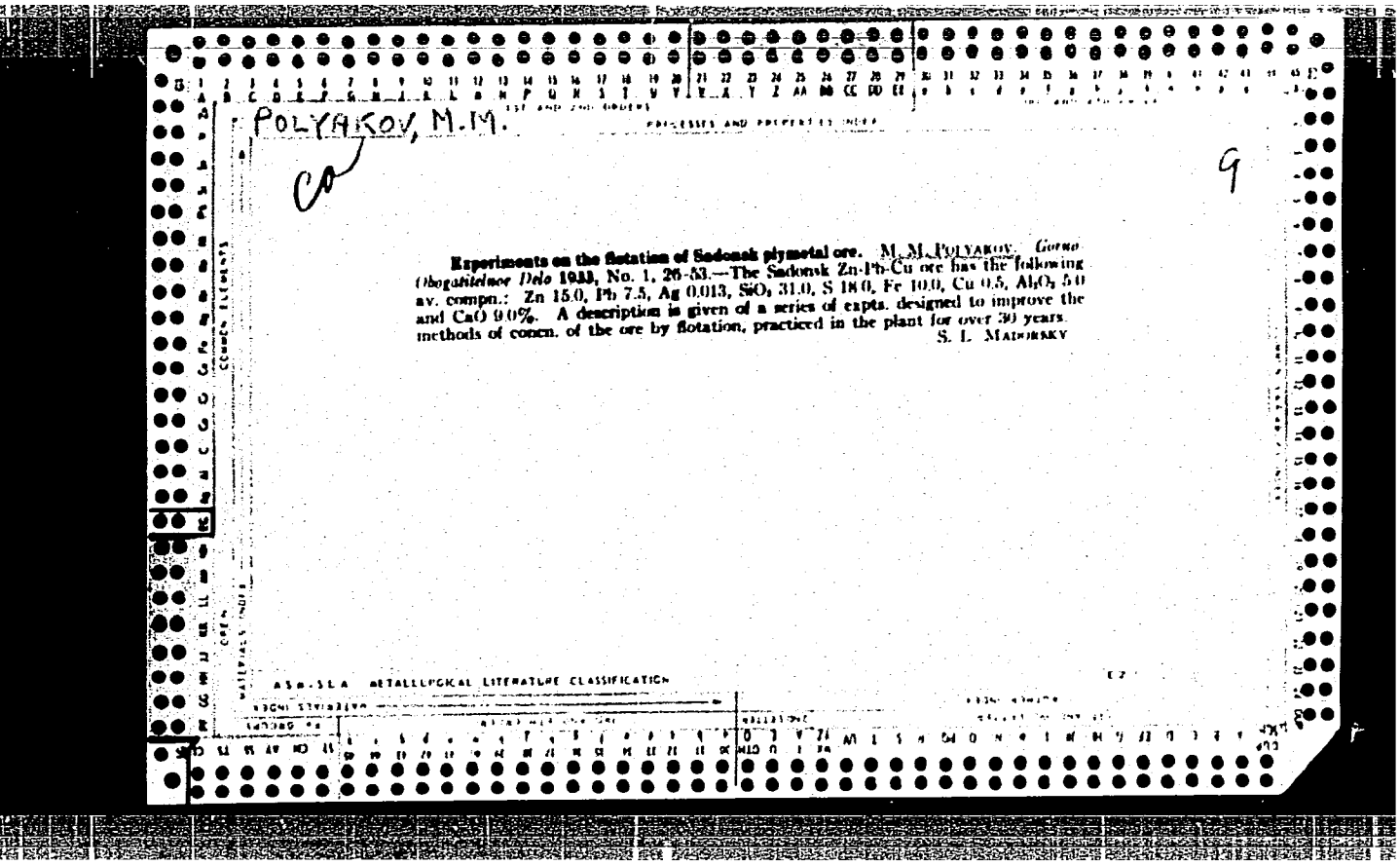
Dynamics of the growth and involution of the thymus in swine. Sbor.trud.Khar'.vet.inst. 21:130-134 '52. (MLRA 9:12)

1. Kafedra normal'noy anatomii Khar'kovskogo veterinarnogo instituta.

(Thymus gland) (Swine--Anatomy)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4



POLYAKOV, M.M.

Co

9

Experiments on the flotation of Sadonsk plymetal ore. M. M. POLYAKOV. *Gorno Obogatitelnoe Delo* **1933**, No. 1, 26–53.—The Sadonsk Zn-Pb-Cu ore has the following av. compn.: Zn 15.0, Pb 7.5, Ag 0.013, SiO_2 31.0, S 18.0, Fe 10.0, Cu 0.5, Al_2O_3 5.0 and CaO 9.0%. A description is given of a series of expts. designed to improve the methods of concn. of the ore by flotation, practiced in the plant for over 30 years.
S. L. MADORSKY

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

POLYAKOV, M.M.

Technological conditions and the work of plant technicians.
TSvet.met. 27 no.2:2-10 Mr-Ap '54. (MLRA 10:10)
(Flotation)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

AUTHOR: Polyakov, M.M.

TITLE: Letter to the editor.

136-4-18/23

PERIODICAL: "Tsvetnye Metally"(Non-ferrous Metals) 1957, No.4, pp. 78-81 (U.S.S.R.)

ABSTRACT: In this letter to the Editor, the author criticises an article by L.A. Glazunov ("The use of iron sulphate in the direct selective flotation of polymetallic ores", "Tsvetnye Metally", 1956, No. 12) dealing with practice at the Belousovskiy plant. Glazunov is considered to have given an incomplete and one-sided picture of results obtained with and without the use of $FeSO_4$ and to have drawn premature conclusions about the usefulness of using this chemical. In this letter, additional information on Belousovskiy practice is presented, the copper, lead and zinc contents in the ore, the copper concentrate, the lead concentrate and the zinc concentrate being given, together with the extraction of these elements, and the tailings analyses. The author maintains that the month on which Glazunov based his conclusions was exceptional, and that Glazunov did not make full use of his opportunities to check his conclusions. There are 7 tables.

Card 1/1

ASSOCIATION: Belousovskiy Mine (Belousovskiy Rudnik).

AVAILABLE:

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

AUTHOR: Polyakov, M.M., Engineer SOV/136-58-10-21/27

TITLE: Reviews and Bibliography (Retsenzii i bibliografiya)

PERIODICAL: Tsvetnyye Metally, 1958, Nr 10, pp 83 - 89 (USSR)

ABSTRACT: The following book is reviewed: M.A. Fishman and D.S. Sobolev - "Beneficiation Practice for Ores of Non-ferrous and Rare Metals", Vol 1. Metallurgizdat, 1957.

Card 1/1

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

SOV/130-59-1-10/21

AUTHORS: Polyakov M.M., Skachkov L.N. and Pindyurin N.I.

TITLE: Improvement in Pass Design for R-5 Rails (Usovershenstvovaniye kalibrovki rel'sov R-5)

PERIODICAL: Metallurg, 1959, Nr 1, pp 22-23 (USSR)

ABSTRACT: R-5 rails (Fig 1) are rolled from 150 mm square billets, 1.35 m long weighing 237 kg. The authors describe a former roll-pass design (Fig 2) with which a mean hourly productivity of 15.57 tonnes per hour and a reject rate of 2.2% were obtained in 1953. They go on to discuss a later design (Fig 3) which gave a 17% increase in productivity and a reduction of reject rate from 2.9 to 0.66%. The later system has 4 instead of 5 rail passes and 1 less preparatory pass and only one pass per stand is used in the finishing line. In a newer design (Fig 4) two passes

Card 1/2

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Improvement in Pass Design for R-5 Rails

have been eliminated and the mean hourly productivity raised to 20.78 tonnes per hour; roll turning has been facilitated and roll consumption reduced from 10 to 6 rolls a year.
There are 4 figures.

ASSOCIATION: Yenakiyevskiy Metallurgicheskiy Zavod (Yenakiyevo Metallurgical Works)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

POLYAKOV, M.M.

18.5700

75187
SOV/133-60-3-12/24

AUTHORS: Minayev, A. F. (Engineer), Lefedov, A. A. (Candidate of Technical Sciences), Telyashkin, N. V., Terzinyan, N. S., Kurilov, A.I., Shvetkov, I. N., Polyakov, M. M., Litvenetskiy, I. A., deceased (Engineers)

TITLE: Two-Line Rolling With Repeaters of Deformed Concrete Reinforcing Bars

PERIODICAL: Stal', 1960, Nr 3, pp 238-243 (USSR)

ABSTRACT: The introduction of two-line rolling of deformed concrete reinforcing bars on a redesigned small section 280 mm mill at Yenakiyevo Plant (Yenakiyevskiy metallurgicheskiy zavod) has increased the mill's hourly productivity by about 70%. The rolling is almost fully mechanized and automated by the addition of two-line repeaters in front and in the rear part of the mill. The following participated in the work: N. A. Abramenko, A. P. Mikhal'chenko, I. N. Galakhov, I. I. Ivanov, A. A. Gusakov, I. P. Antonyuk, N. K. Nikolenko, V. A. Ternavskiy, V. D. Syrovyatnikov, P. S. Bogomolov, N. V. Kuzblokh, I. Peresetskiy.

Card 1/7

ASSOCIATIONS: Yenakiyevo Metallurgical Plant, Dneprodzerzhinsk Metallurgical Evening Institute (Dneprodzerzhinskiy vechernyy metallurgicheskiy institut)

Card 7/7

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

POLYAKOV, M.M.; CHEKANOV, N.S.; AGEYEVA, T.F.; GROMOVA, V.A.

Seasonal fluctuation of technological indices for dressing complex metal ores. TSvet.met. 38 no.3:13-16 Mr '65.

(MIRA 18:6)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

MISHCHENKO, N.M., inzh.; BERDICHEVSKIY, Ye.Ye., inzh.; TERMINOSYAN, N.S., inzh.; KURILOV, A.I., inzh.; POLYAKOV, M.M., inzh.; DEMIDOVICH, Ye.A., inzh.; PINDYURIN, N.I., inzh.; Prinimali uchastiye: MALINOVSKIY, V.G.; MOLCHANOV, I.V.; MASHISHINA, M.P.; YEMCHENKO, Ye.K.; CHEREDNICHENKO, A.A.; STEPANOV, V.A.; SKACHKOV, L.N. [deceased]; KOSHMAN, A.I.; SHCHEKLIN, V.V.; CHUBATYUK, Ye.G.; KHITOVA, Ye.Ye.; KOROBOVA, G.Z.; ROTMISTROVSKIY, B.M.; VEYSBEYN, A.D.

Increasing the efficiency of section tandem mills by the use of repeaters. Stal' 23 no.3:236-241 Mr '63. (MIRA 16:5)

1. Yenakiyevskiy metallurgicheskiy zavod.
(Rolling mills--Equipment and supplies)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

POLYAKOV, M.M.

Use of rapid calculating machines for information processing in ore dressing plants. TSvet.met. 34 no.10:18-21 O '61. (MIRA 14:10)

(Ore dressing) (Electronic calculating machines)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

MINAYEVA, A.F., inzh.; NEFEDOV, A.A., kand.tekhn.nauk; TELUSHKIN, N.V., inzh; TERMINOSYAN, N.S., inzh.; KURILOV, A.I., inzh.; SKACHKOV, L.N., inzh.; POLYAKOV, M.M., inzh; LIPOVETSKIY, I.A., inzh.

Double-groove rolling with guides, of ribbed concrete reinforcing bars. Stal' 20 no.3:234-243 Mr '60. (MIRA 13:6)

1. Yenakiyevskiy metallurgicheskiy zavod i Dneprodzerzhinskiy vecherniy metallurgicheskiy institut.
(Rolling (Metalwork)) (Reinforcing bars)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

POLYAKOV, M. N., SAMUKHIN, N. V., KAZYRSHIN, A. Ya., and ZAV'YALOV, Ye. S.

"Clinical and Physiological Approach to the Study and Examination of Neuroses and Asthenias of the Flying Personnel," Voyenno-medits. zhur., No. 1, pp. 30-36, 1955.

Verbatim translation - D 311970, 17 Aug 1955

The article gives a description of treatment of two casualties at the Central Scientific-Research Institute of the Air Force Hospital based on I. P. Pavlov's theories and A. G. Ivanov-Smolenskiy's methods.

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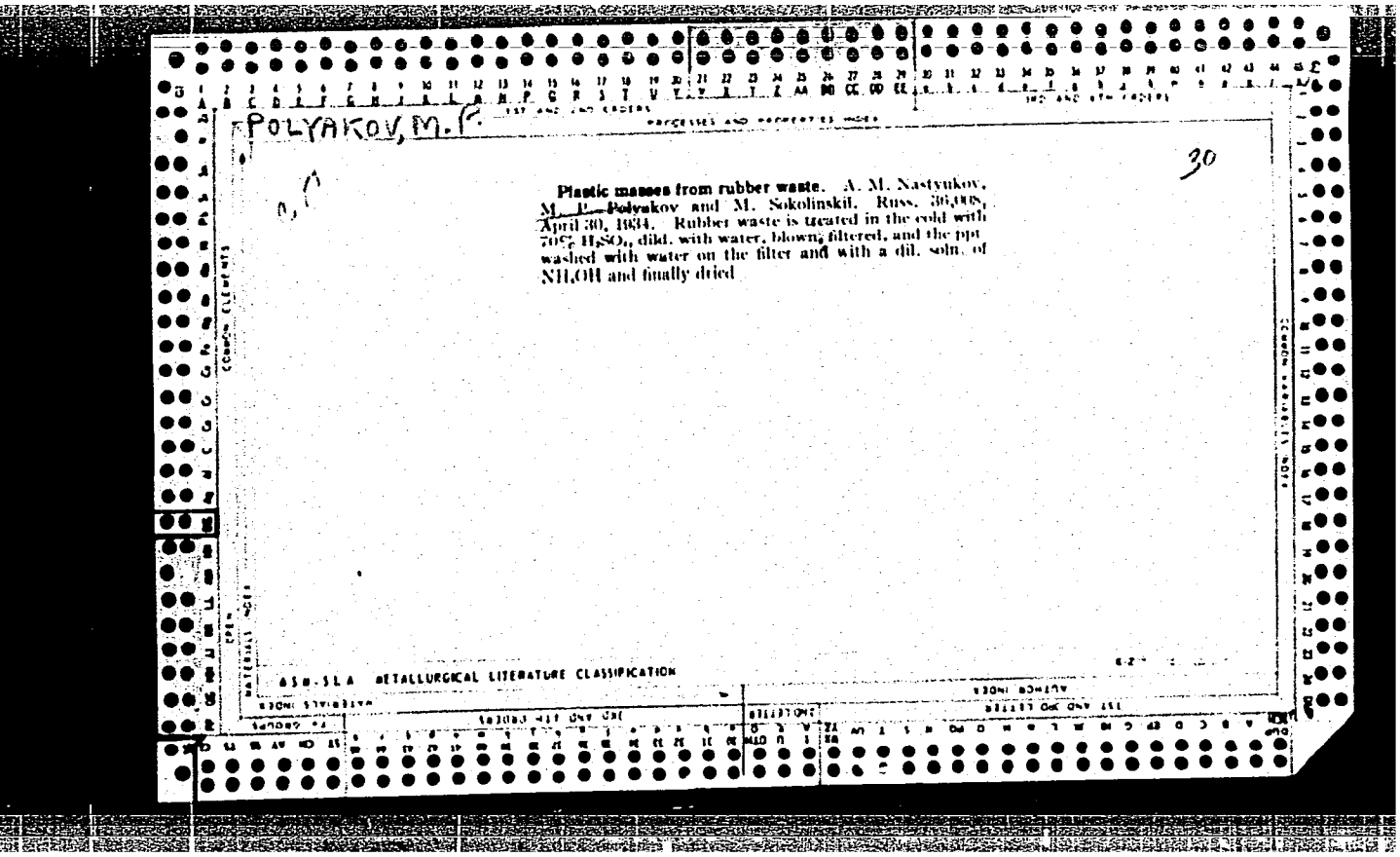
"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

POLYAKOV, M.N., polkovnik med.sluzhby, ZAV'YALOV, Ye.S., polkovnik med. sluzhby, kand.med.nauk

Examination of flight personnel in cases of diseases of the nervous system. Voen-med.zhur. no.12:8-11 D '55 (MIRA 12:1)
(RUSSIA--AIR FORCE--MEDICAL EXAMINATIONS)
(NERVOUS SYSTEM--DISEASES)

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POLYAKOV, M. F.

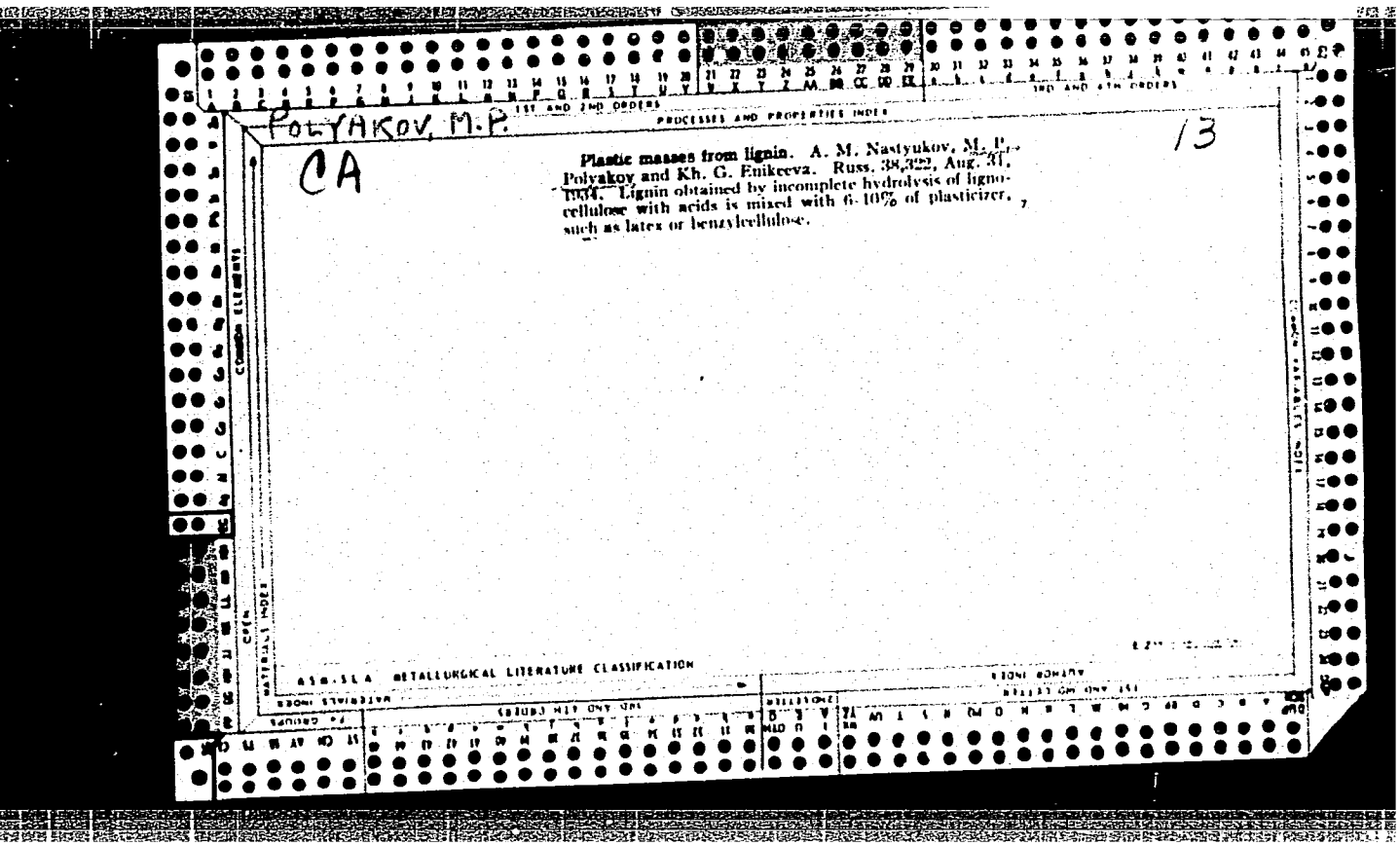
30

Plastic masses from rubber waste. A. M. Nastyukov, M. F. Polyakov and M. Sokolinskii. Russ. 36,008, April 30, 1934. Rubber waste is treated in the cold with 70% H_2SO_4, dild. with water, blown, filtered, and the ppt. washed with water on the filter and with a dil. soln. of NH$_4$OH and finally dried.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4



POLYAKOV, M.P.

CA

13

Plastic masses from lignin. A. M. Nastyukov, M. P. Polyakov and Kh. G. Enikeeva. Russ. 38,322, Aug. 31, 1934. Lignin obtained by incomplete hydrolysis of lignocellulose with acids is mixed with 6-10% of plasticizer, such as latex or benzylcellulose.

A58-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

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POLYAKOV M. P.

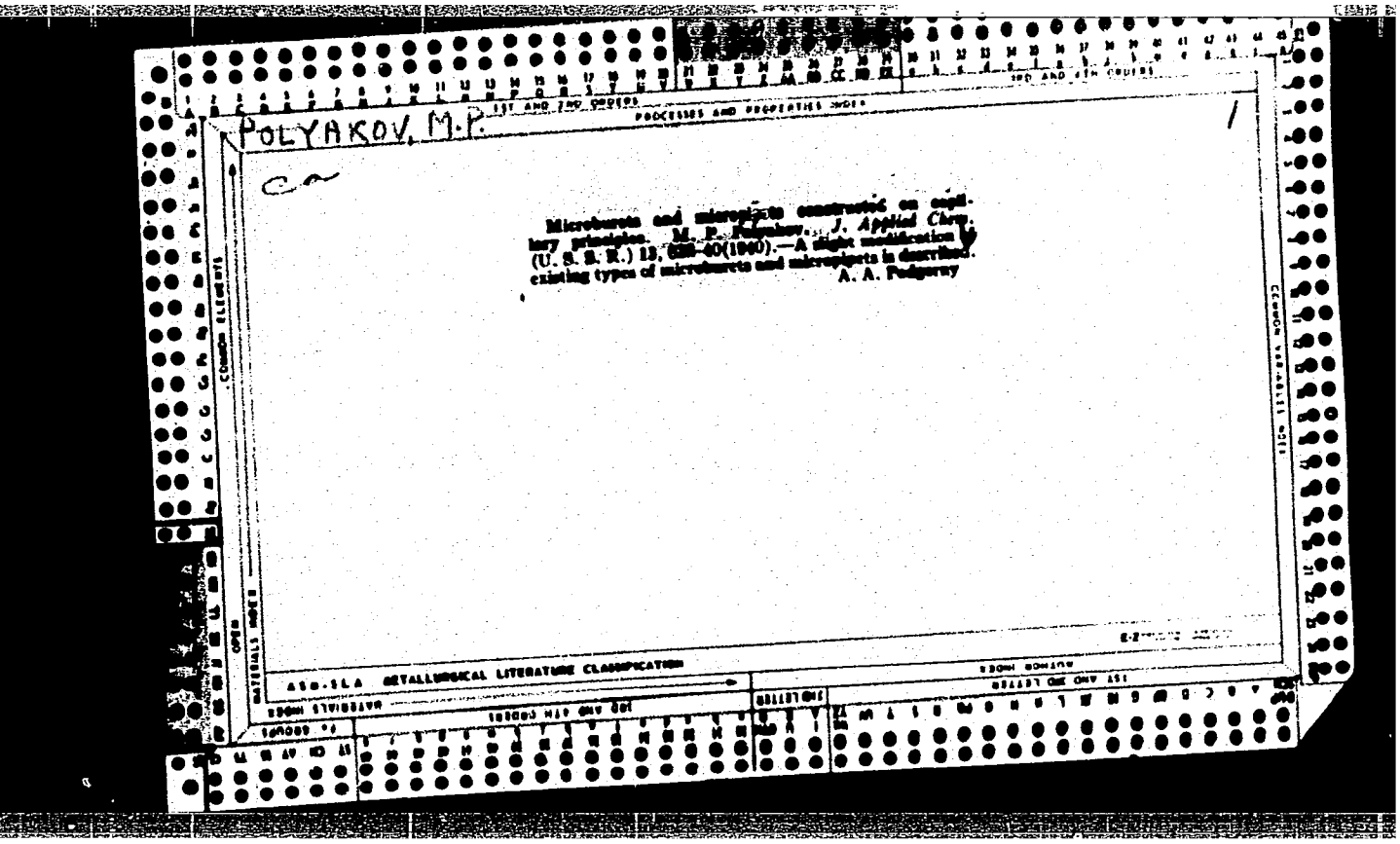
MALIN, K. M., NASTYUKOV, A. M., and POLYAKOV, M. P.

"Artificial resins," Russ. 56044, Nov 30, 1939.

Acid sludge is treated with 3-9% formalin (of the weight of the sludge) with cooling, the reaction mass dild. with water, and the condensation product filtered off and treated in known manner.

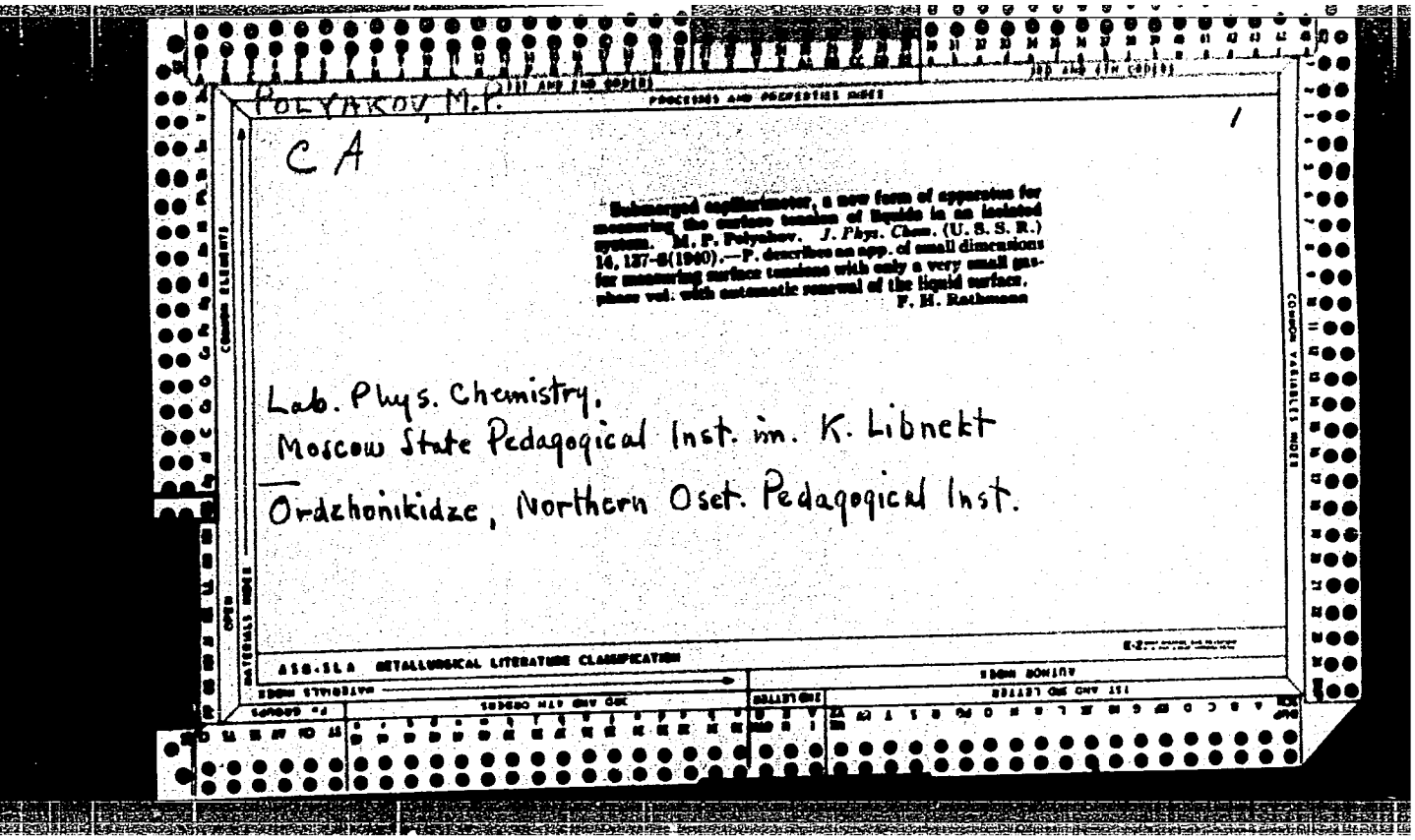
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POLYAKOV, M.I.

CA

1

Submerged equilibrimeter, a new form of apparatus for measuring the surface tension of liquids in an isolated system. M. P. Polyakov. *J. Phys. Chem.* (U. S. S. R.) 14, 127–8(1940).—P. describes an app. of small dimensions for measuring surface tensions with only a very small gas-phase vol. with automatic renewal of the liquid surface.
F. H. Rathmann

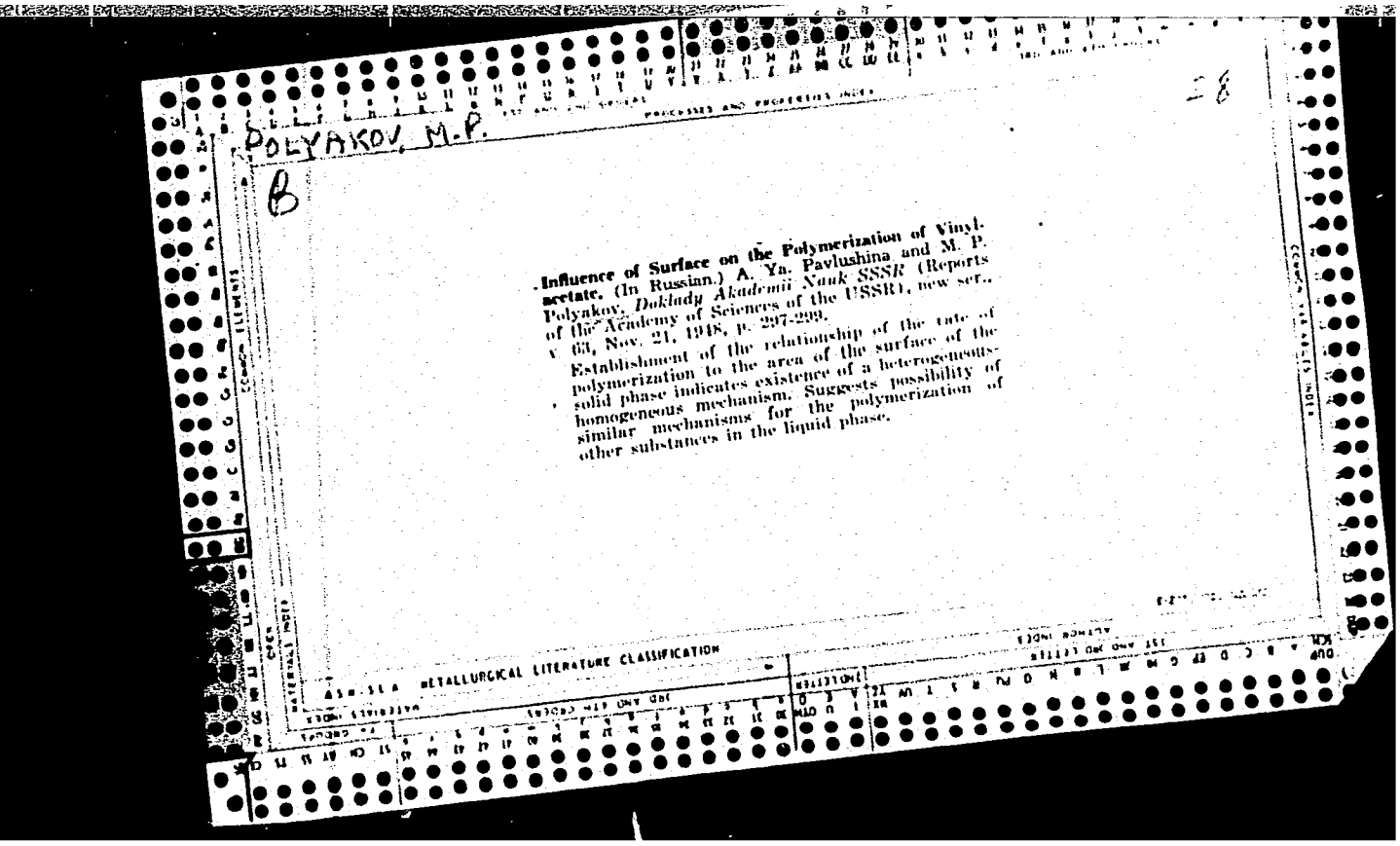
Lab. Phys. Chemistry,
Moscow State Pedagogical Inst. im. K. Libnekt

Ordzhonikidze, Northern Oset. Pedagogical Inst.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4



POLYAKOV, M.P.

B

28

Influence of Surface on the Polymerization of Vinyl-acetate. (In Russian.) A. Ya. Pavlushina and M. P. Polyakov. *Doklady Akademii Nauk SSSR* (Reports of the Academy of Sciences of the USSR), new ser., v. 63, Nov. 21, 1948, p. 297-299.

Establishment of the relationship of the rate of polymerization to the area of the surface of the solid phase indicates existence of a heterogeneous-homogeneous mechanism. Suggests possibility of similar mechanisms for the polymerization of other substances in the liquid phase.

A3m.3.6.A METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

POLYAKOV, M. P.

Method of rapid microvolume analysis of ground waters, water samples, and solutions in soil of salted-up regions. M. P. Polyakov (Section Agr. Sci., Acad. of Sciences, Armenian SSR, Erevan). *Gidrokhim. Materialy* 24, 41–4 (1955).—Titration with Trilon B is best for identifying Ca and Mg; direct titration with $BaCl_2$ in presence of tetraoxyquinone as indicator is best for SO_4^{--}; usual volumetric methods are used for CO_3^{--}, HCO_3^-, and Cl^- ions. It is more accurate to det. Mg from difference between general hardness and the Ca^{++} concn. General hardness is titrated by Versene with Black Eriochrome T; Ca hardness by Versene with murexide as the indicator. To titrate Mg directly (with Ca as difference), its hardness is obtained from Versene with Eriochrome Black T as indicator (after adding excess oxalate liquid) in presence of pptd. Ca oxalate. Elec. cond. as the control magnitude is good, needing few min. and 3–12 ml. liquid, with little effect from colloids; but if concn. exceeds 0.001 *N*, soln. must be dild. H. T. R.

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

POLYAKOV, M.P.

New technique for micretitration. Izv.AN Arm.SSR Biol.i sel'khoz.nauki 9 no.7:49-60 Jl '56. (MLRA 9:9)

1.Sektor pochvovedeniya Akademii nauk Armyanskoy SSR.
(Titration)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

AKAYEV, I.A.; ZVONOV, A.A.; POLYAKOV, M.P.

Using blasthole charges with air gaps at the Angren open-pit coal mine. Ugol' 40 no.12:34-38 D '65. (MIRA 18:12)

1. Angrenskiy ugol'nyy kar'yer (for Akayev). 2. Nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut po dobyche poleznykh iskopayemykh otkrytym sposobom (for Zvonov, Polyakov).

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

L 6872-65 EEO-2/EWT(l)/EWT(m)/EPF(c)/EPR/EWA(d)/EWA(b)/EWA/EED-2/FCS(k)/
FSS-2 Pr-4/Ps-4 RPL/AFWL/SSD BW/WW/JW S/0081/64/000/007/N079/N079
ACCESSION NR: AR4041673

68

SOURCE: Ref. zh. Khimiya, Abs. 7N38

AUTHOR: Zvonov, A. A.; Polyakov, M. P.

TITLE: Test of explosives in industrial conditions

CITED SOURCE: Sb. Nauchn. tr. Chelyab. n.-i. in-t gorn. dela, vy*p. 2, 1963, 254-258

TOPIC TAGS: explosive, blast effect, explosives testing

TRANSLATION: Tests were conducted to determine the effectiveness of blasts on uncovering cuts with different explosive substances. Test materials were granulite Ac and C, and graingranulite 80/20 and 50/50. Results of explosions of these explosives were compared with results of explosion of ammonite No. 6. Authors note the expediency of replacing ammonite No. 6 by granulite AC, which they consider the best of the tested explosives.

SUB CODE: WA, IE ENCL: 00

Card 1/1

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

ZVONOV, A.A., inzh.; KUZNETSOV, I.M., inzh.; POLYAKOV, M.P., inzh.

Practice of using new technology in boring and blasting operations in pits of the "Magnezit" Plant. Vzryv. delo no.51/8:256-264 '63. (MIRA 16:6)

1. Chelyabinskiy nauchno-issledovatel'skiy institut gornogo dela.

(Boring machinery) (Blasting)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

ROTENBURG, Iosif Solomonovich, kand. tekhn. nauk, dots.; POLYAKOV, Mikhail Pavlovich, kand. tekhn. nauk, dots.; ZOLOTAREV, Nikolay Vasil'yevich, kand. tekhn. nauk, dots.; LAVROVSKIY, Vadim Aleksandrovich, inzh.; DADENKOV, Yu.N., doktor tekhn. nauk, prof., retsenzent; BEGAM, L.G., kand. tekhn. nauk, retsenzent; BORODINA, N.N., red.

[Designing bridge crossings over large streams] Proektirovanie mostovykh perekhodov cherez bol'shie vodotoki. Moskva, Vysshaia shkola, 1965. 335 p. (MIRA 18:6)

1. Chlen-korrespondent AN Ukr.SSR (for Dadenkov). 2. Rukovoditel' laboratorii mostovoy gidravliki i gidrologii TSental'nogo nauchno-issledovatel'skogo instituta svyazi (for Begam).

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

POLYAKOV M. P.

USSR / General Division, Methods and Techniques of Research A-6

Abs Jour: Ref Zhur-Biologiia, No 5, 1958, 18918

Author : Poliakov M. P.

Inst : -

Title : New Technique of Microtitration

Orig Pub: Izv. AN ArmSSR, biol. i s.-kh. n., 1956, 9, 49-60

Abstract: The new technique of microtitration worked out by the author is described in detail. The apparatus (described by the author earlier) consists of a straight capillary-hydrostatic microburet, a small flask, a micropipette with automatic filling, and an ampule for the titration solution. The details and advantages of this technique of microtitration are analyzed.

Card 1/1

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

POLYAKOV, M.S.

Over-all mechanization of mining. Nauka i zhyttia 10 no.1:19 Ja '60. (MIRA 13:6)

1. Chlen-korrespondent AN USSR, rukovoditel' Otdela kompleksnoy mekhanizatsii Instituta gornogo dela AN USSR i zaveduyushchiy kafedroy rudnikovogo transporta Dnepropetrovskogo gornogo instituta.
(Dnepropetrovsk—Mining research)
(Mining engineering)

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

NEVYAZHSKAYA, Ye.A.; NIKULIN, N.Ya.; POLYAKOV, M.T.

Increasing the productivity of peat-gasifying gas generators.
Gaz.prom. 5 no.1:23-24 Ja '60. (MIRA 13:4)
(Gas producers)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

POLYAKOV, M.T.; NEVYAZHSKAYA, Ye.A.; KREYS, M.A.

Measures for improving the operation of peat gas generator plants. Gaz. prom. no. 7:11-14 Jl '58. (MIRA 11:7)
(Peat gasification)
(Gas producers)

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4

POLYAKOV, N., polkovnik; BELOVOL, N., podpolkovnik; ASANOV, N., kapitan.

Training of tank crews. Tankist no.2:39-41 F '58. (MIRA 11:3)
(Tanks (Military science))

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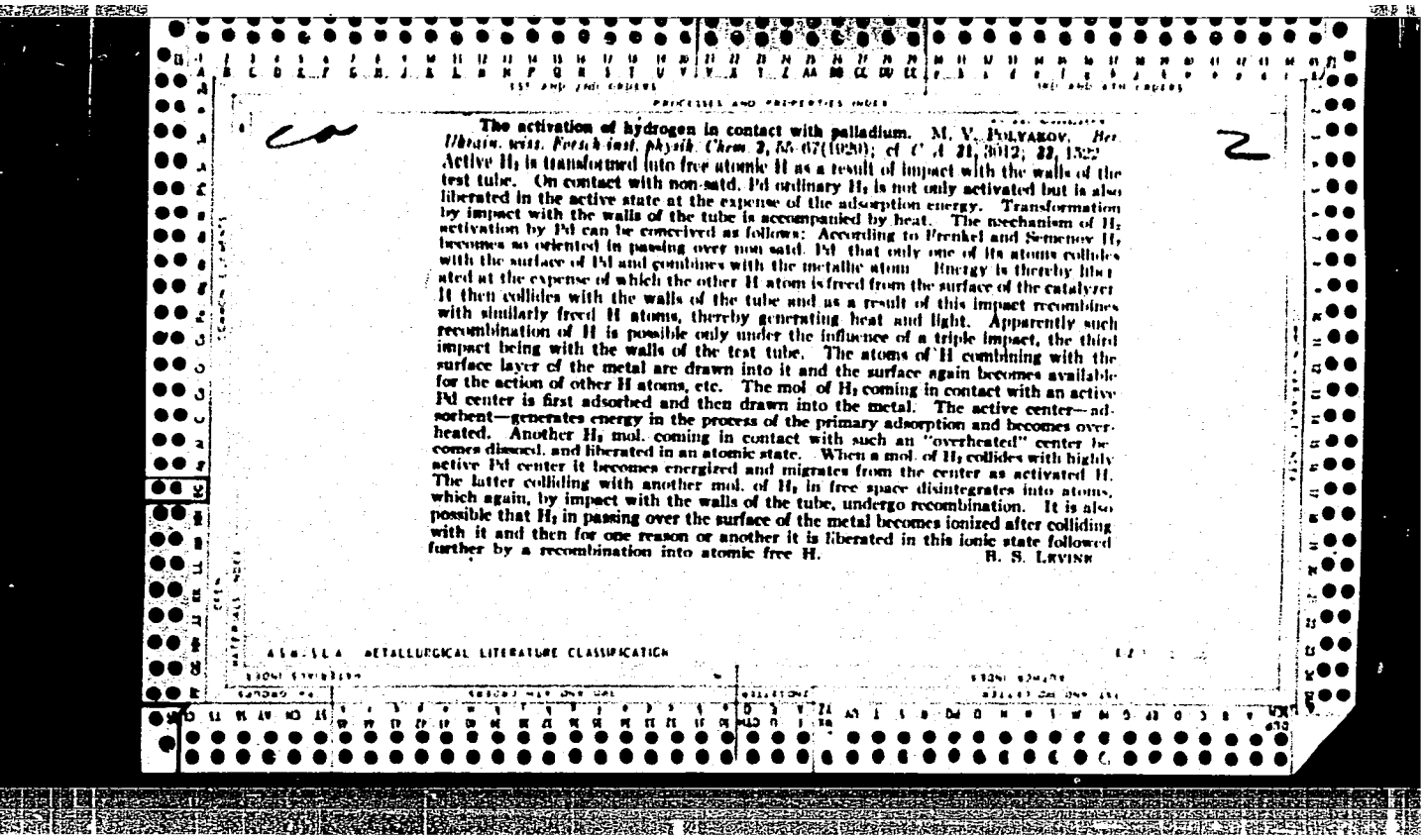
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MILEYKOVSKIY, Solomon Gerasimovich; MOROZOV, Arkadiy Petrovich; POLYAKOV, M.U., retsenzent; KHERN, K.D., retsenzent; ABOLITS, I.A., otv. red.; ULANOVSKAYA, N.M., red.

[Long-distance communication and multiplexing of municipal telephone circuits] Dal'niaia sviaz' i uplotnenie gorodskikh telefonnykh tsepei. Moskva, Izd-vo "Sviaz," 1964. 357 p. (MIRA 17:12)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001342010006-4"

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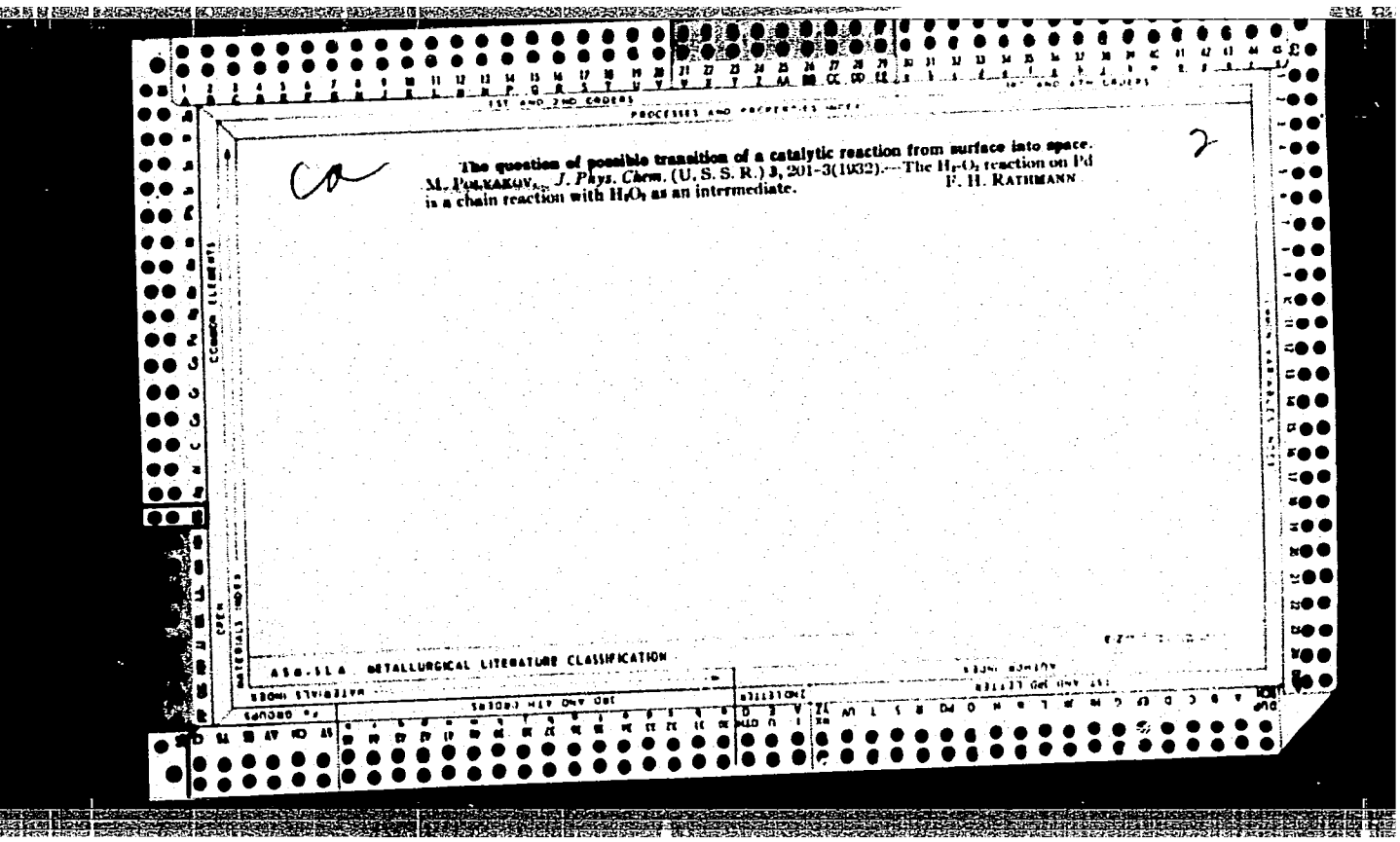


The activation of hydrogen in contact with palladium. M. V. POLYAKOV. *Zhur. Ukrain. nauk. Fizich. inst. physik. Chem.* **2**, 55-67(1926); cf. *C. A.* **21**, 3012; **22**, 1322. Active H_2 is transformed into free atomic H as a result of impact with the walls of the test tube. On contact with non-satd. Pd ordinary H_2 is not only activated but is also liberated in the active state at the expense of the adsorption energy. Transformation by impact with the walls of the tube is accompanied by heat. The mechanism of H_2 activation by Pd can be conceived as follows: According to Frenkel and Semenov H_2 becomes so oriented in passing over non satd. Pd that only one of its atoms collides with the surface of Pd and combines with the metallic atom. Energy is thereby liberated at the expense of which the other H atom is freed from the surface of the catalyzer. It then collides with the walls of the tube and as a result of this impact recombines with similarly freed H atoms, thereby generating heat and light. Apparently such recombination of H is possible only under the influence of a triple impact, the third impact being with the walls of the test tube. The atoms of H combining with the surface layer of the metal are drawn into it and the surface again becomes available for the action of other H atoms, etc. The mol of H_2 coming in contact with an active Pd center is first adsorbed and then drawn into the metal. The active center—adsorbent—generates energy in the process of the primary adsorption and becomes overheated. Another H_2 mol. coming in contact with such an "overheated" center becomes dissocd. and liberated in an atomic state. When a mol. of H_2 collides with highly active Pd center it becomes energized and migrates from the center as activated H. The latter colliding with another mol. of H_2 in free space disintegrates into atoms, which again, by impact with the walls of the tube, undergo recombination. It is also possible that H_2 in passing over the surface of the metal becomes ionized after colliding with it and then for one reason or another it is liberated in this ionic state followed further by a recombination into atomic free H.

B. S. LEVINE

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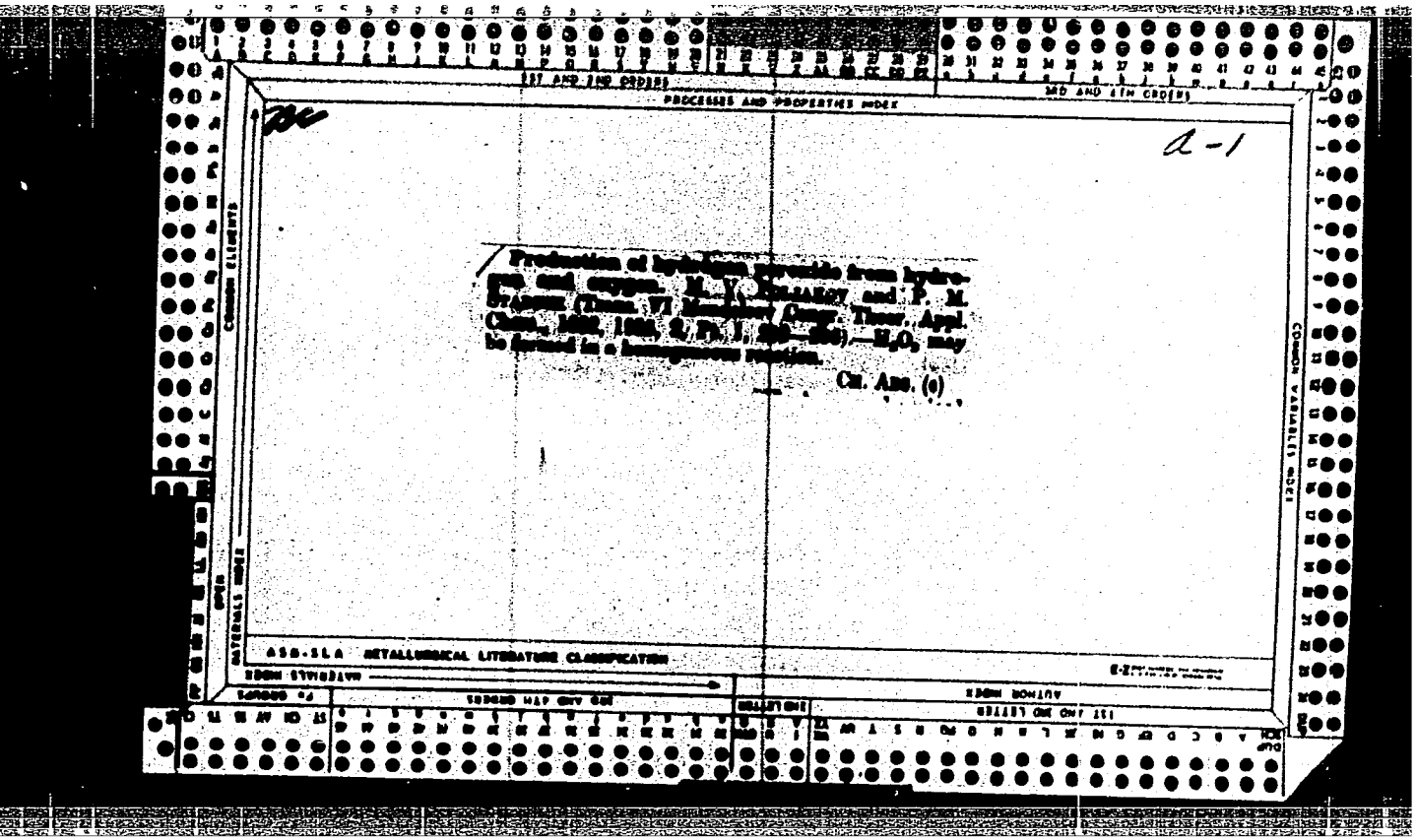
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The question of possible transition of a catalytic reaction from surface into space.
M. POLYAKOV. *J. Phys. Chem.* (U. S. S. R.) **3**, 201–3(1932).—The H_2-O_2 reaction on Pd is a chain reaction with H_2O_2 as an intermediate. F. H. RATHMANN

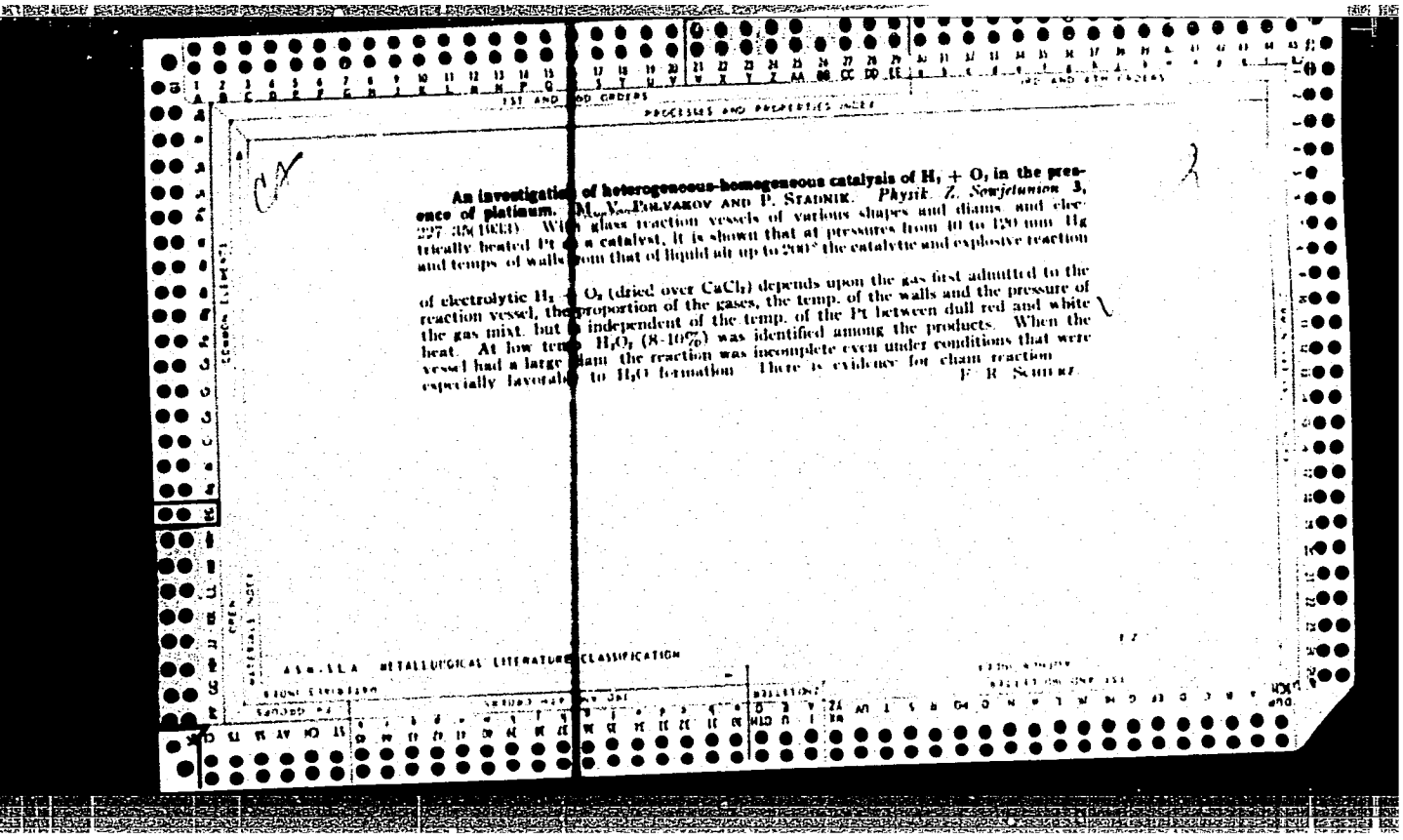
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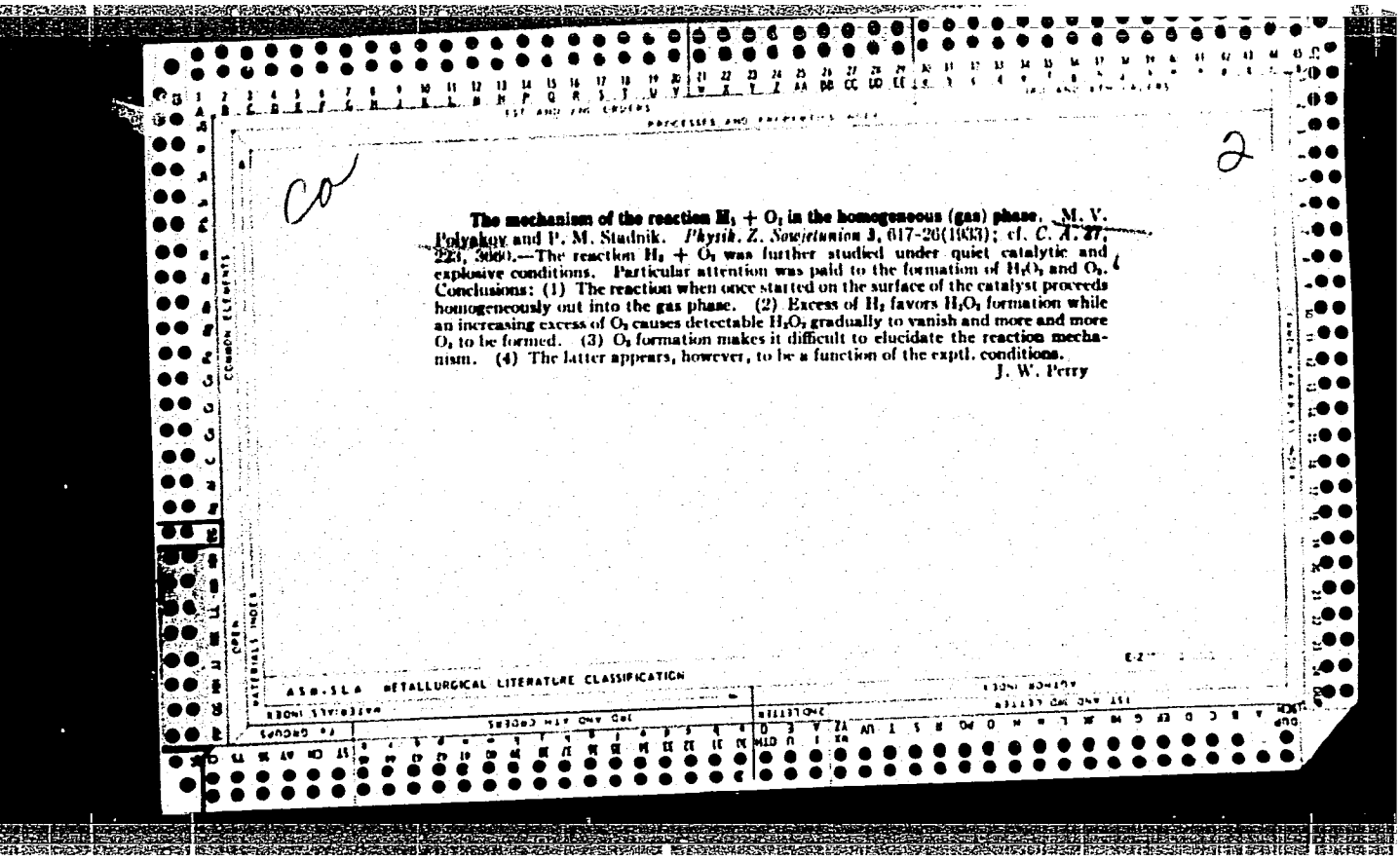


An investigation of heterogeneous-homogeneous catalysis of $H_2 + O_2$ in the presence of platinum. M. V. Polyakov and P. Staunik. *Physik. Z. Sowjetunion* 3, 227-35(1933). With glass reaction vessels of various shapes and diams. and electrically heated Pt as a catalyst, it is shown that at pressures from 40 to 120 mm. Hg and temps. of walls from that of liquid air up to 200° the catalytic and explosive reaction of electrolytic $H_2 + O_2$ (dried over $CaCl_2$) depends upon the gas first admitted to the reaction vessel, the proportion of the gases, the temp. of the walls and the pressure of the gas mixt. but is independent of the temp. of the Pt between dull red and white heat. At low temps. H_2O_2 (8-10%) was identified among the products. When the vessel had a large diam. the reaction was incomplete even under conditions that were especially favorable to H_2O formation. There is evidence for chain reaction.

F. R. Schmitt

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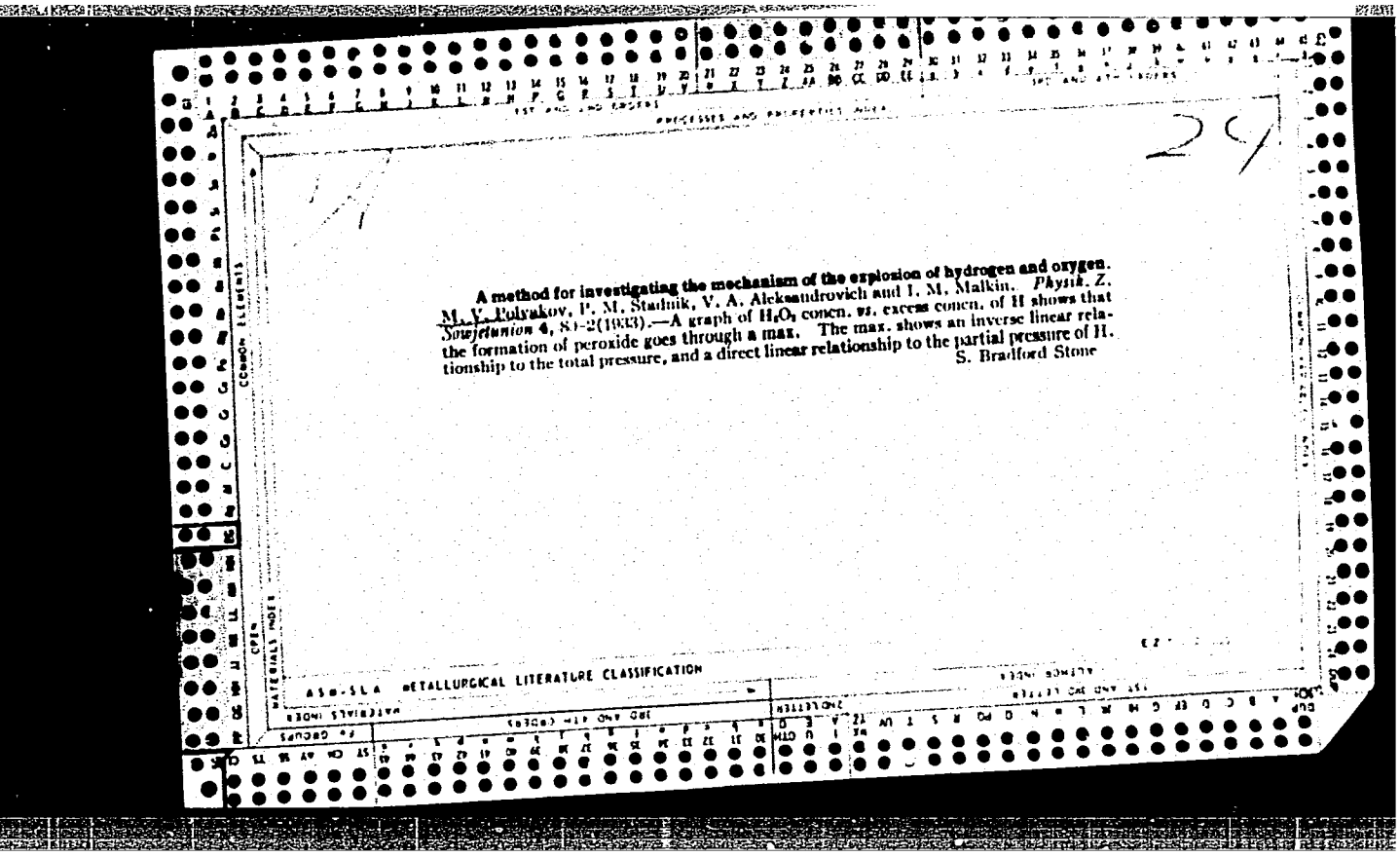


The mechanism of the reaction $H_2 + O_2$ in the homogeneous (gas) phase. M. V. Polyakov and P. M. Stadnik. *Fiyzik. Z. Sowjetunion* 3, 617-26(1933); cf. *C. A.* 27, 223, 3000.—The reaction $H_2 + O_2$ was further studied under quiet catalytic and explosive conditions. Particular attention was paid to the formation of H_2O_2 and O_3. Conclusions: (1) The reaction when once started on the surface of the catalyst proceeds homogeneously out into the gas phase. (2) Excess of H_2 favors H_2O_2 formation while an increasing excess of O_2 causes detectable H_2O_2 gradually to vanish and more and more O_3 to be formed. (3) O_3 formation makes it difficult to elucidate the reaction mechanism. (4) The latter appears, however, to be a function of the exptl. conditions.

J. W. Perry

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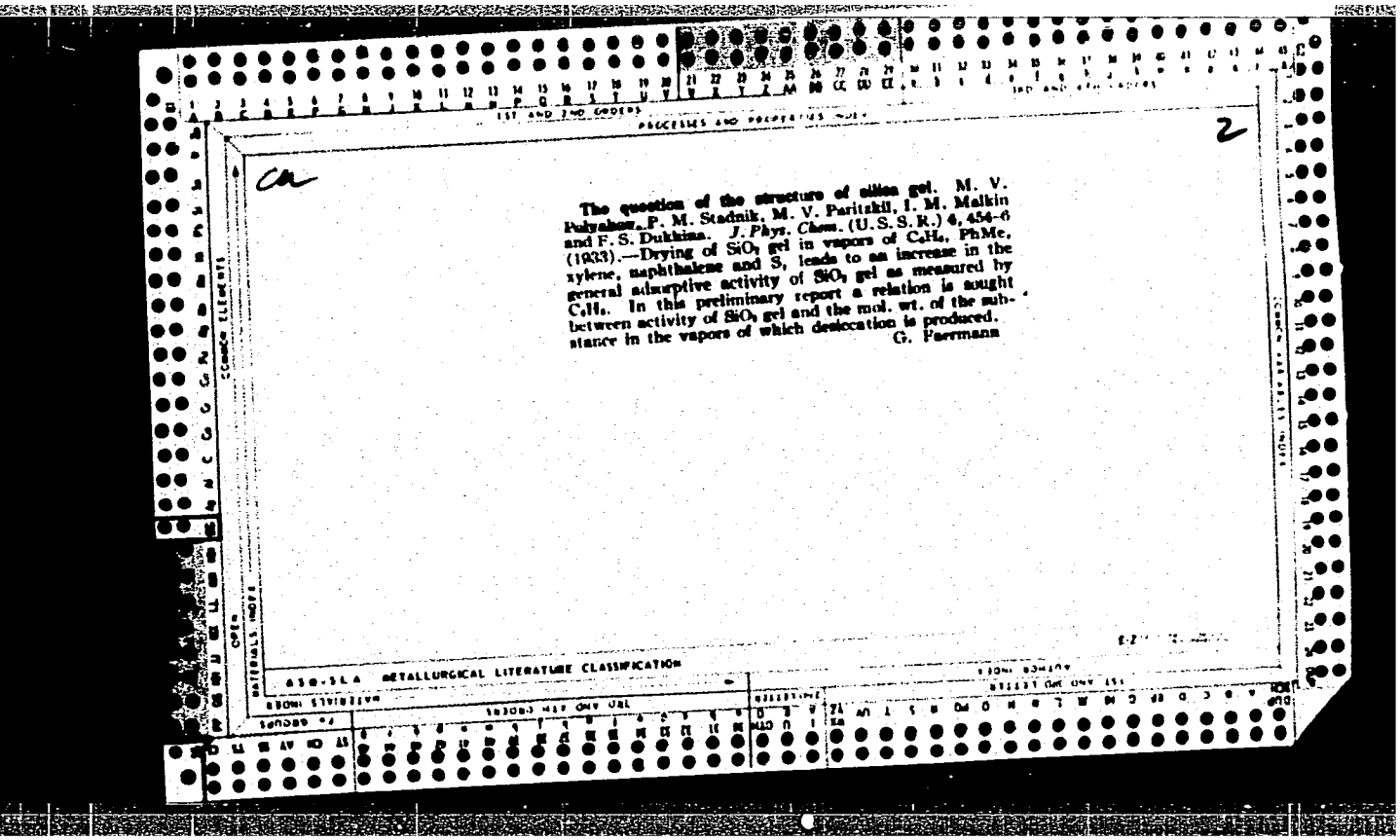
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A method for investigating the mechanism of the explosion of hydrogen and oxygen. M. V. Polyakov, P. M. Stadnik, V. A. Aleksandrovich and I. M. Malkin. *Physik. Z. Sowjetunion* 4, 81-2(1933).—A graph of H_2O_2 concn. *vs.* excess concn. of H shows that the formation of peroxide goes through a max. The max. shows an inverse linear relationship to the total pressure, and a direct linear relationship to the partial pressure of H.
S. Bradford Stone

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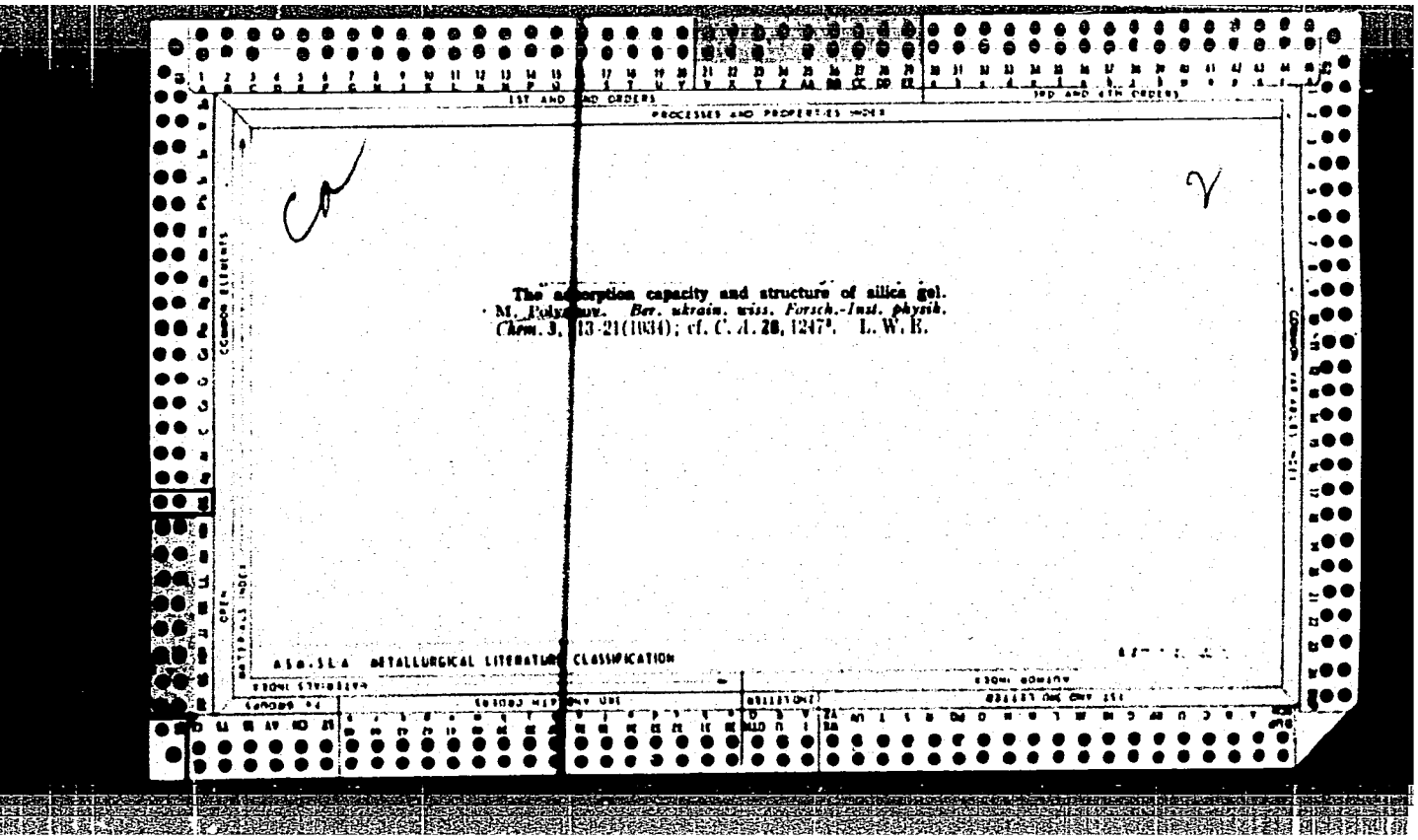
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The question of the structure of silica gel. M. V. Polyakov, P. M. Stadnik, M. V. Paritskii, I. M. Malkin and F. S. Dukhina. *J. Phys. Chem.* (U.S.S.R.) 4, 454-6 (1933).—Drying of SiO_2 gel in vapors of C_6H_6, PhMe, xylene, naphthalene and S, leads to an increase in the general adsorptive activity of SiO_2 gel as measured by C_6H_6. In this preliminary report a relation is sought between activity of SiO_2 gel and the mol. wt. of the substance in the vapors of which desiccation is produced.
G. Peermann

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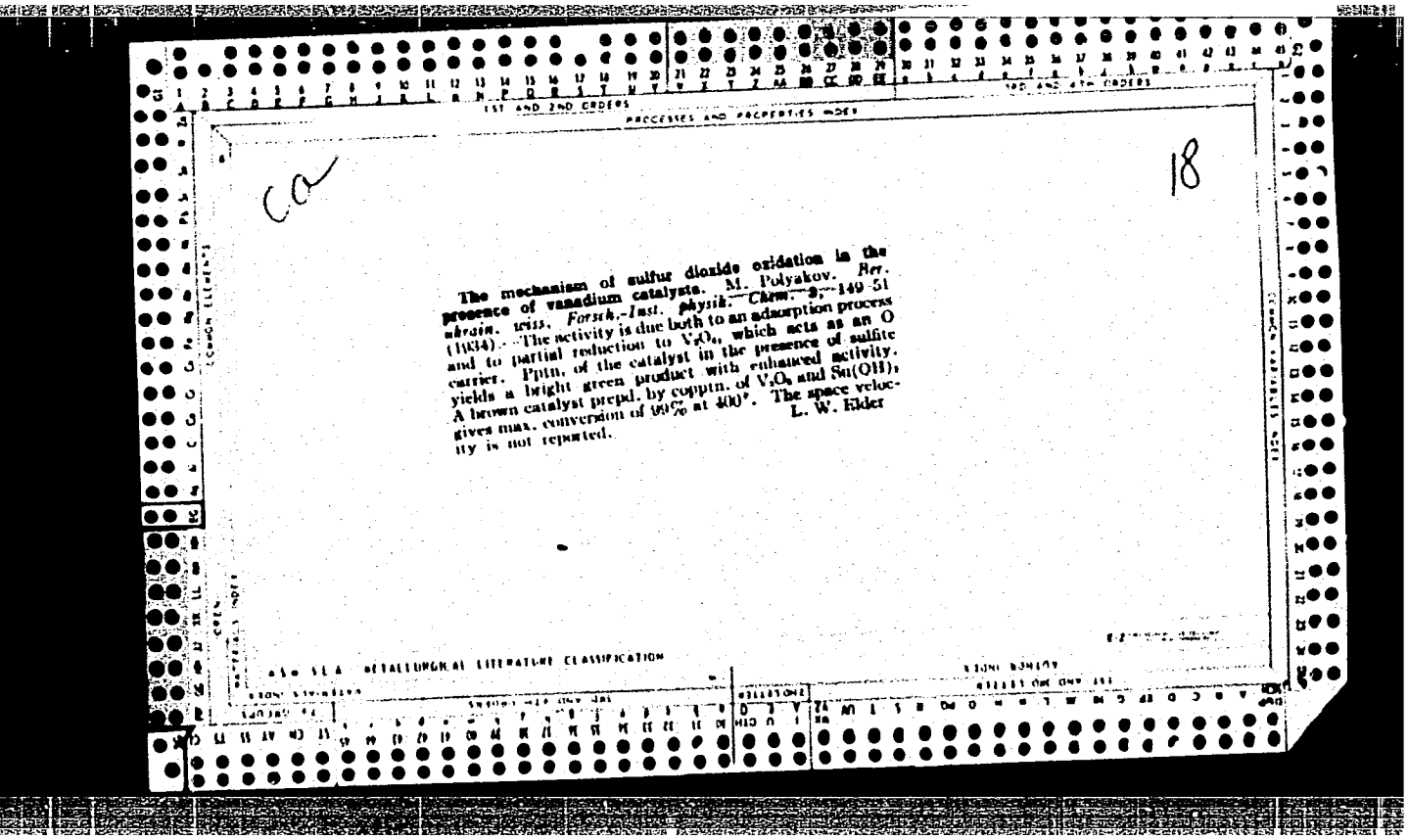
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The adsorption capacity and structure of silica gel.
M. Polyakov. *Ber. ukrain. wiss. Forsch.-Inst. physik. Chem.* 3, 13-21(1934); cf. C. A. 28, 1247⁸. L. W. E.

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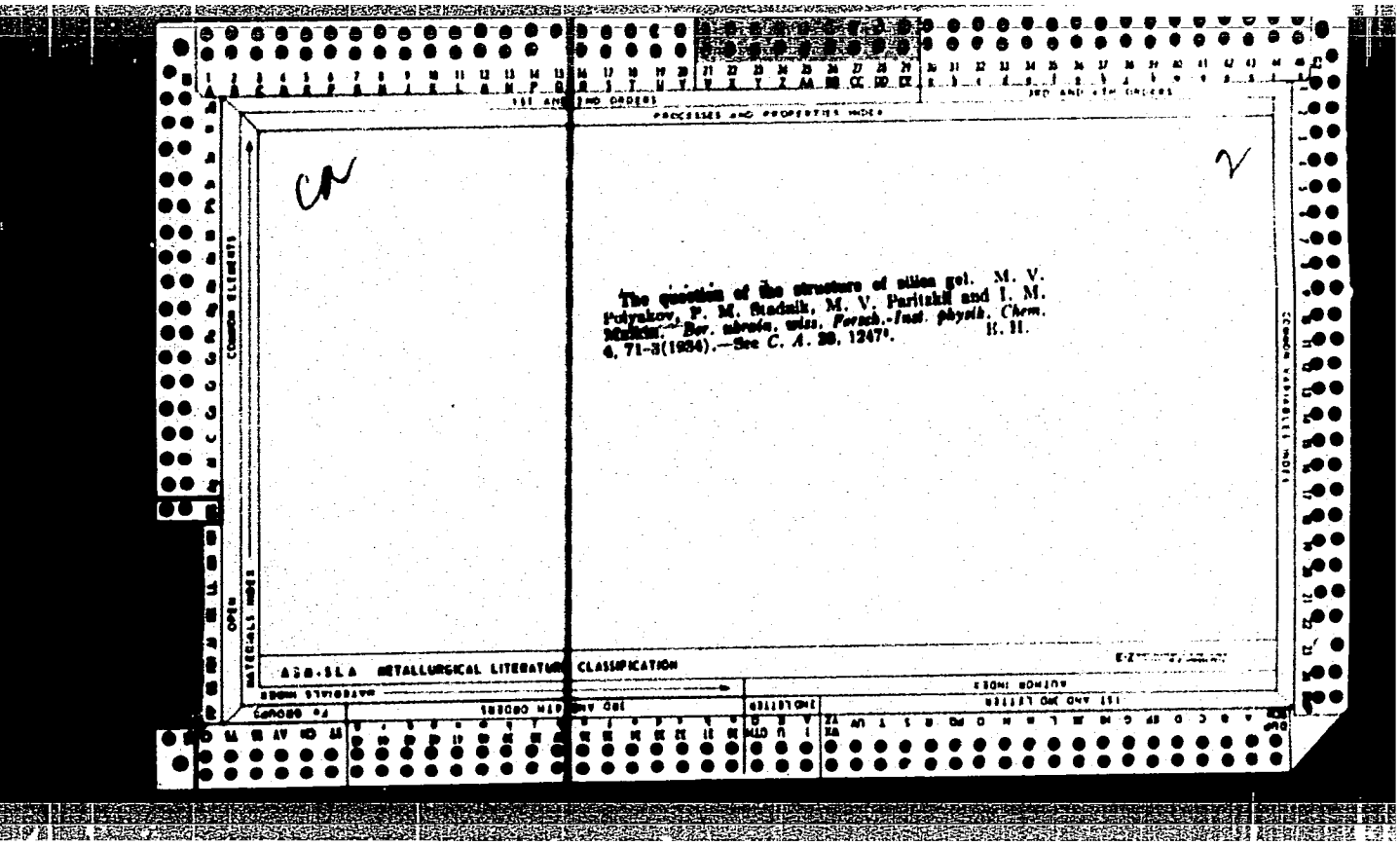
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The mechanism of sulfur dioxide oxidation in the presence of vanadium catalysts. M. Polyakov. *Ber. ukrain. wiss. Forsch.-Inst. physik. Chem.* 9, 149-51 (1934).—The activity is due both to an adsorption process and to partial reduction to V_2O_4, which acts as an O carrier. Pptn. of the catalyst in the presence of sulfite yields a bright green product with enhanced activity. A brown catalyst prepd. by coppth. of V_2O_5 and $Sn(OH)_4$ gives max. conversion of 99% at 400°. The space velocity is not reported.
L. W. Elder

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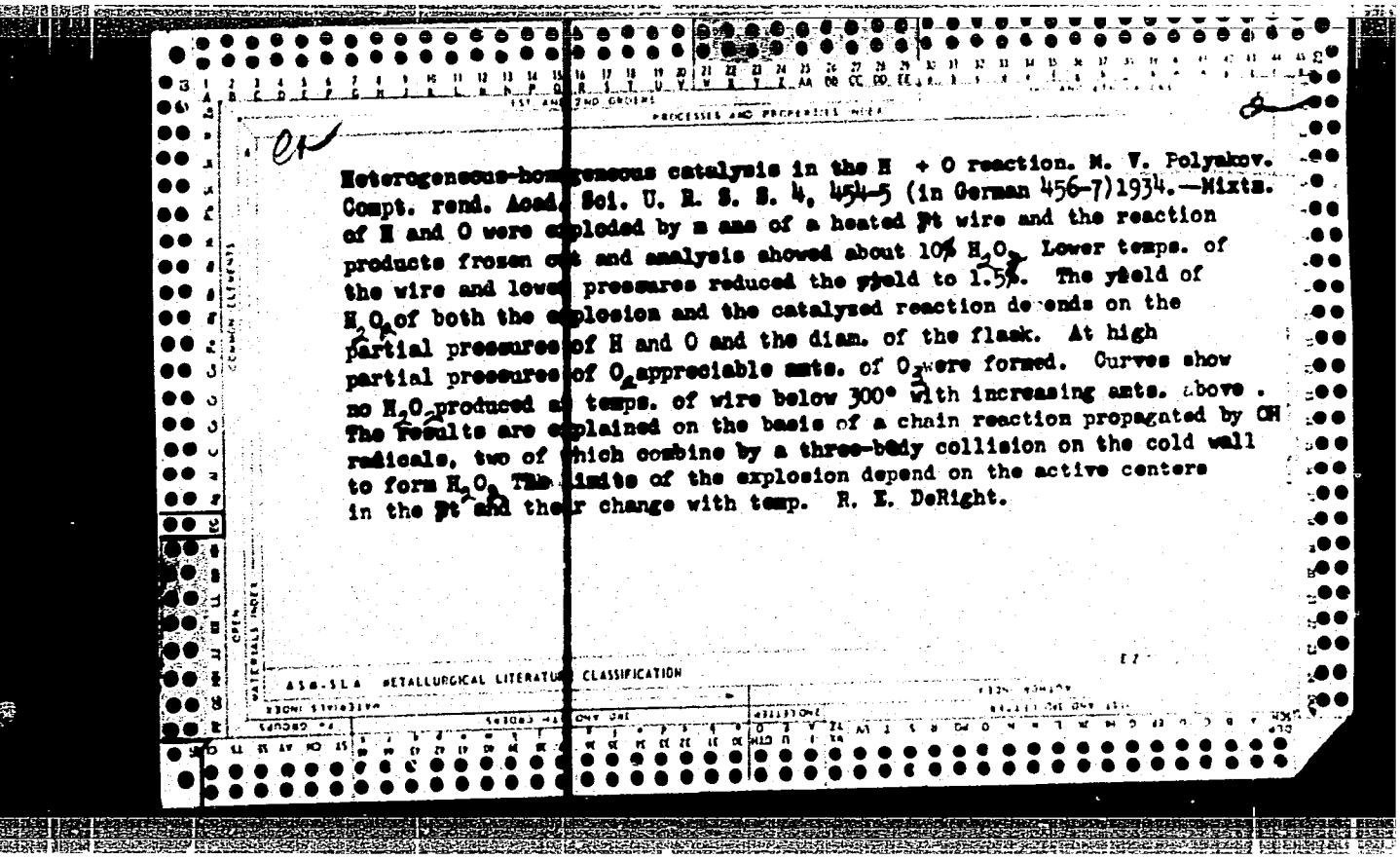
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The question of the structure of silica gel. M. V. Polyakov, P. M. Sadnik, M. V. Paritskii and I. M. Minkin. *Zhur. obshch. khim., Zurnal. Obshchei Khimii.* 4, 71–3(1934).—See *C. A.* 28, 1247[1]. B. H.

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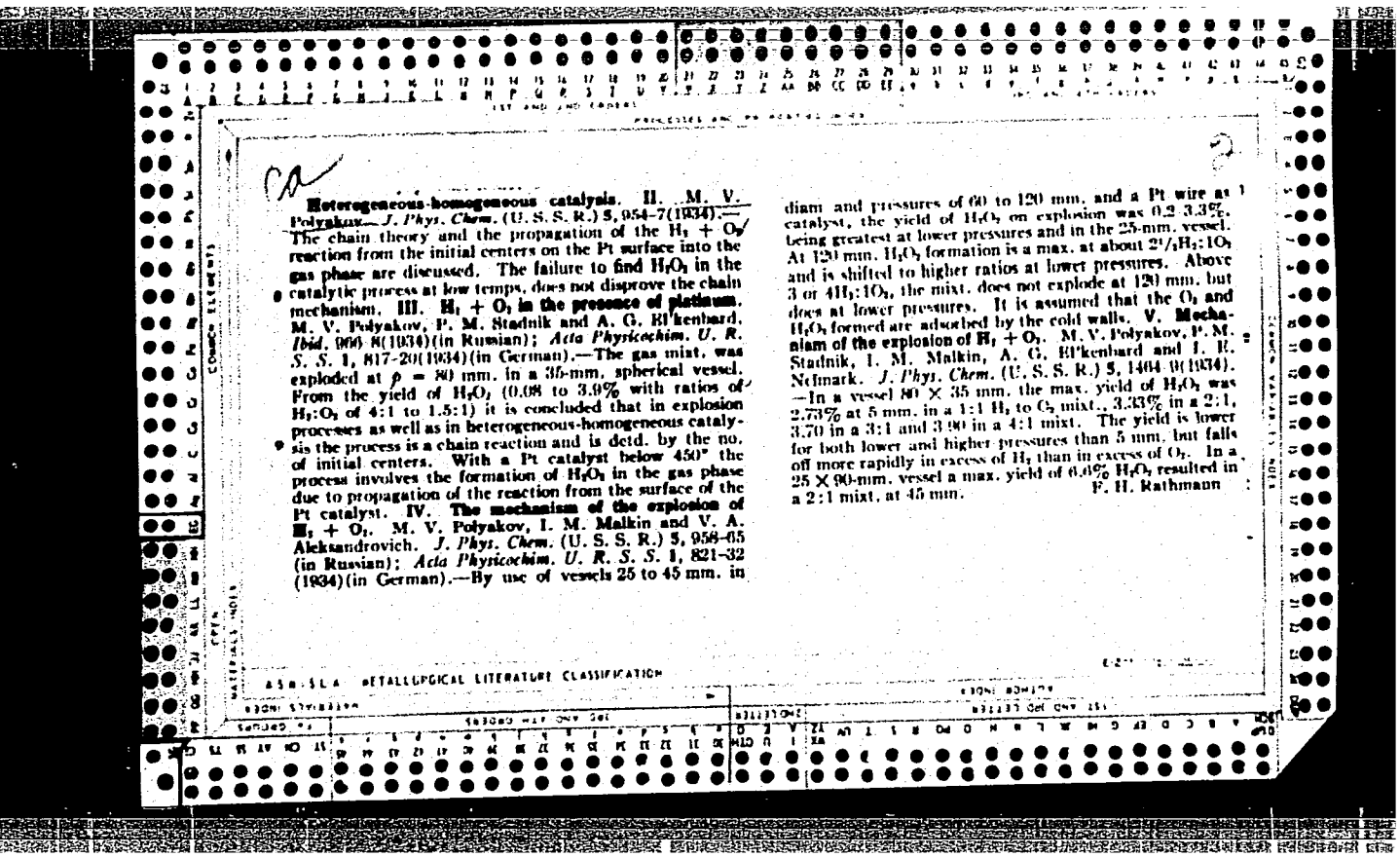
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Heterogeneous-homogeneous catalysis in the H + O reaction. M. V. Polyakov. Compt. rend. Acad. Sci. U. R. S. S. 4, 454-5 (in German 456-7) 1934.—Mixts. of H and O were exploded by means of a heated Pt wire and the reaction products frozen out and analysis showed about 10% H_2O_2. Lower temps. of the wire and lower pressures reduced the yield to 1.5%. The yield of H_2O_2 of both the explosion and the catalyzed reaction depends on the partial pressures of H and O and the diam. of the flask. At high partial pressures of O_2 appreciable amts. of O_2 were formed. Curves show no H_2O_2 produced at temps. of wire below 300° with increasing amts. above. The results are explained on the basis of a chain reaction propagated by OH radicals, two of which combine by a three-body collision on the cold wall to form H_2O_2. The limits of the explosion depend on the active centers in the Pt and their change with temp. R. E. DeRight.

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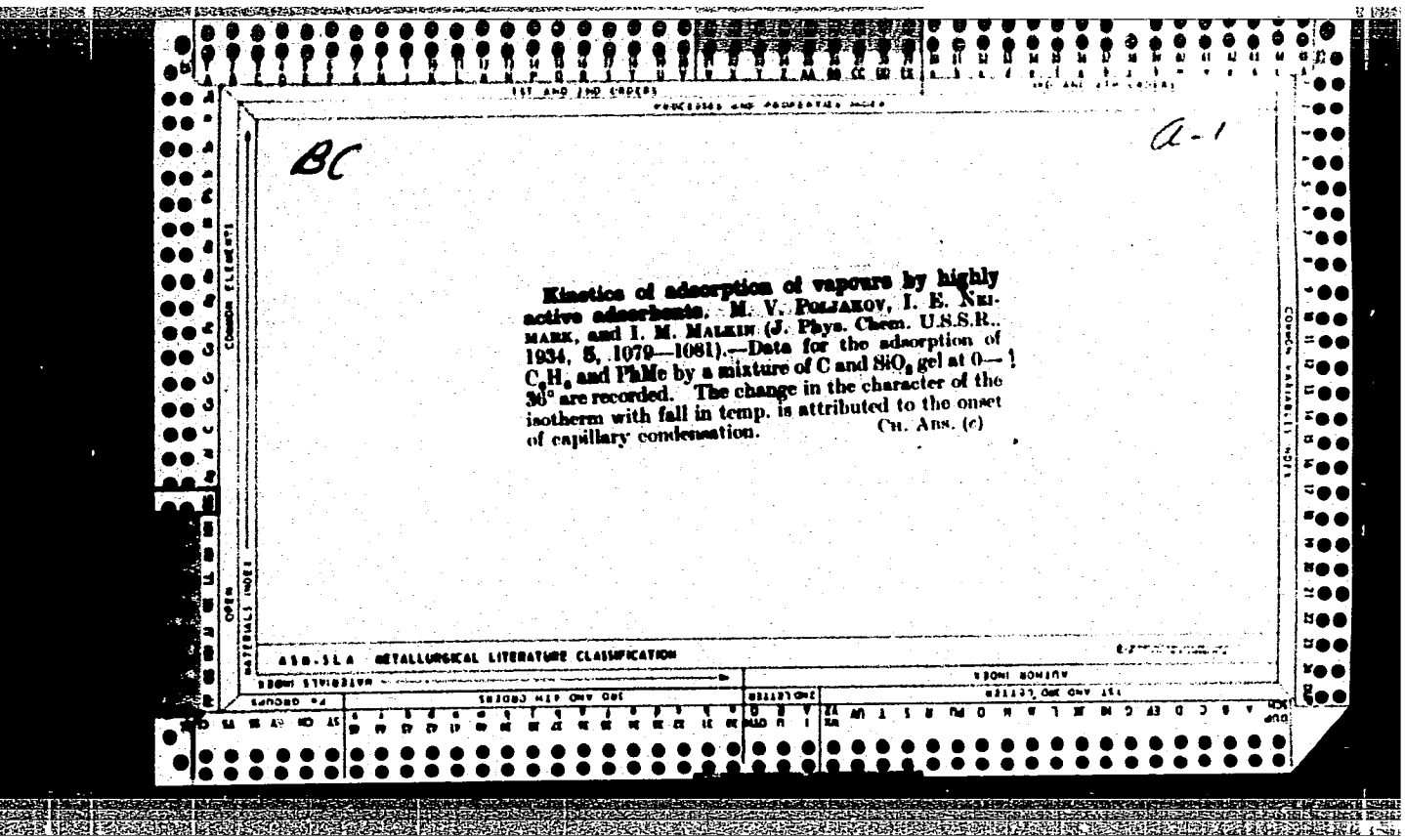
Heterogeneous-homogeneous catalysis. II. M. V. Polyakov.—*J. Phys. Chem.* (U. S. S. R.) 5, 954–7(1934).—The chain theory and the propagation of the $H_2 + O_2$ reaction from the initial centers on the Pt surface into the gas phase are discussed. The failure to find H_2O_2 in the catalytic process at low temps. does not disprove the chain mechanism. **III. $H_2 + O_2$ in the presence of platinum.** M. V. Polyakov, P. M. Stadnik and A. G. Rl'kenbard. *Ibid.* 960–8(1934)(in Russian); *Acta Physicochim. U. R. S. S.* 1, 817–20(1934)(in German).—The gas mixt. was exploded at $p = 80$ mm. in a 35-mm. spherical vessel. From the yield of H_2O_2 (0.08 to 3.9% with ratios of $H_2:O_2$ of 4:1 to 1.5:1) it is concluded that in explosion processes as well as in heterogeneous-homogeneous catalysis the process is a chain reaction and is detd. by the no. of initial centers. With a Pt catalyst below 450° the process involves the formation of H_2O_2 in the gas phase due to propagation of the reaction from the surface of the Pt catalyst. **IV. The mechanism of the explosion of $H_2 + O_2$.** M. V. Polyakov, I. M. Malkin and V. A. Aleksandrovich. *J. Phys. Chem.* (U. S. S. R.) 5, 956–65 (in Russian); *Acta Physicochim. U. R. S. S.* 1, 821–32 (1934)(in German).—By use of vessels 25 to 45 mm. in diam and pressures of 60 to 120 mm. and a Pt wire as catalyst, the yield of H_2O_2 on explosion was 0.2–3.3%, being greatest at lower pressures and in the 25-mm. vessel. At 120 mm. H_2O_2 formation is a max. at about $2^1/_2H_2:1O_2$ and is shifted to higher ratios at lower pressures. Above 3 or $4H_2:1O_2$, the mixt. does not explode at 120 mm. but does at lower pressures. It is assumed that the O_2 and H_2O_2 formed are adsorbed by the cold walls. **V. Mechanism of the explosion of $H_2 + O_2$.** M. V. Polyakov, P. M. Stadnik, I. M. Malkin, A. G. Rl'kenbard and I. E. Nelmark. *J. Phys. Chem.* (U. S. S. R.) 5, 1464–9(1934). —In a vessel 80 × 35 mm. the max. yield of H_2O_2 was 2.73% at 5 mm. in a 1:1 H_2 to O_2 mixt., 3.53% in a 2:1, 3.70 in a 3:1 and 3.90 in a 4:1 mixt. The yield is lower for both lower and higher pressures than 5 mm. but falls off more rapidly in excess of H_2 than in excess of O_2. In a 25 × 90-mm. vessel a max. yield of 6.6% H_2O_2 resulted in a 2:1 mixt. at 45 mm.

F. H. Rathmann

A S.T.M. METALLURGICAL LITERATURE CLASSIFICATION

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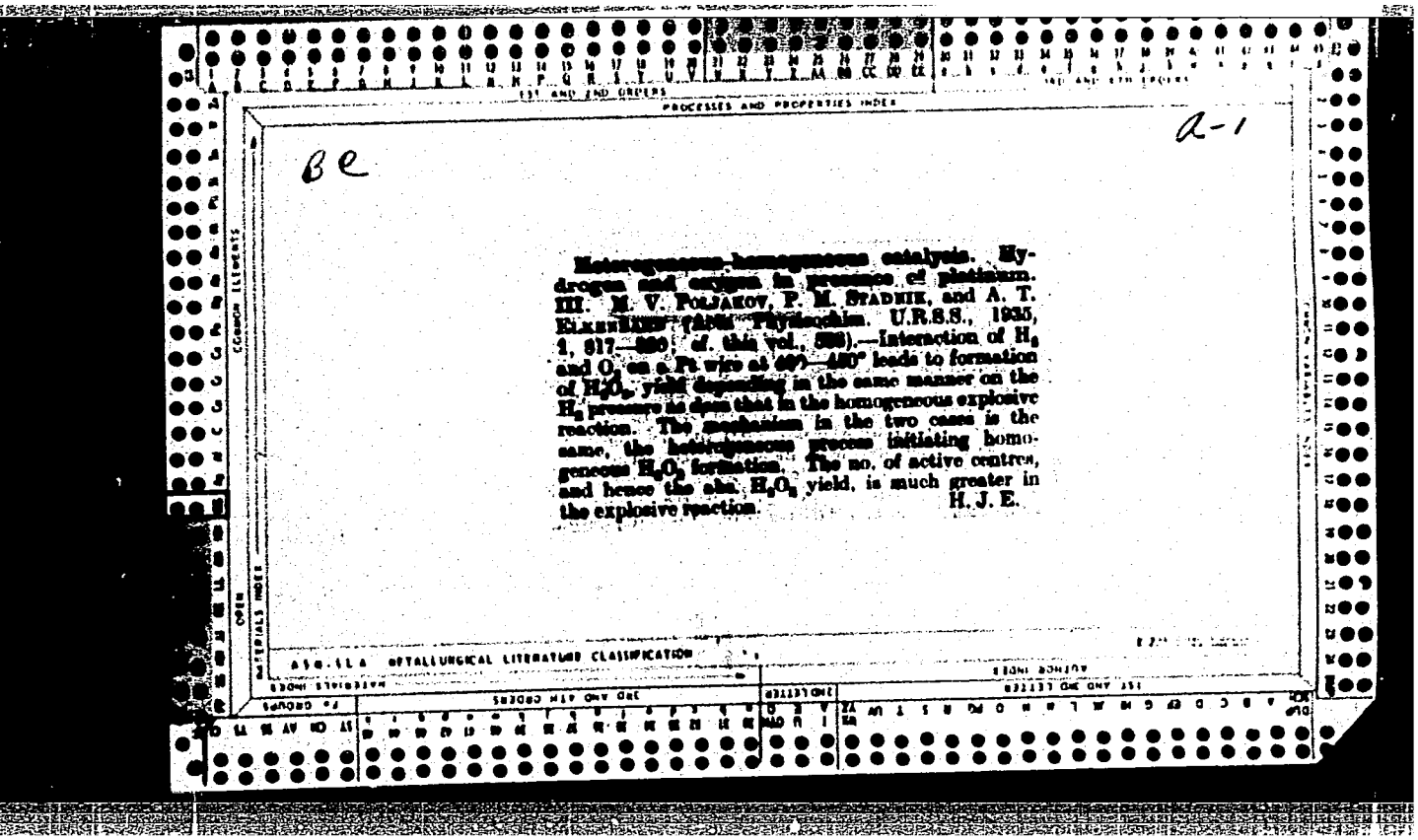
BC

A-1

Kinetics of adsorption of vapours by highly active adsorbents. M. V. POLJAKOV, I. E. NEIMARK, and I. M. MALKIN (J. Phys. Chem. U.S.S.R., 1934, 5, 1079—1081).—Data for the adsorption of C_6H_6 and PhMe by a mixture of C and SiO_2 gel at 0—1 30° are recorded. The change in the character of the isotherm with fall in temp. is attributed to the onset of capillary condensation. Cu. Ans. (c)

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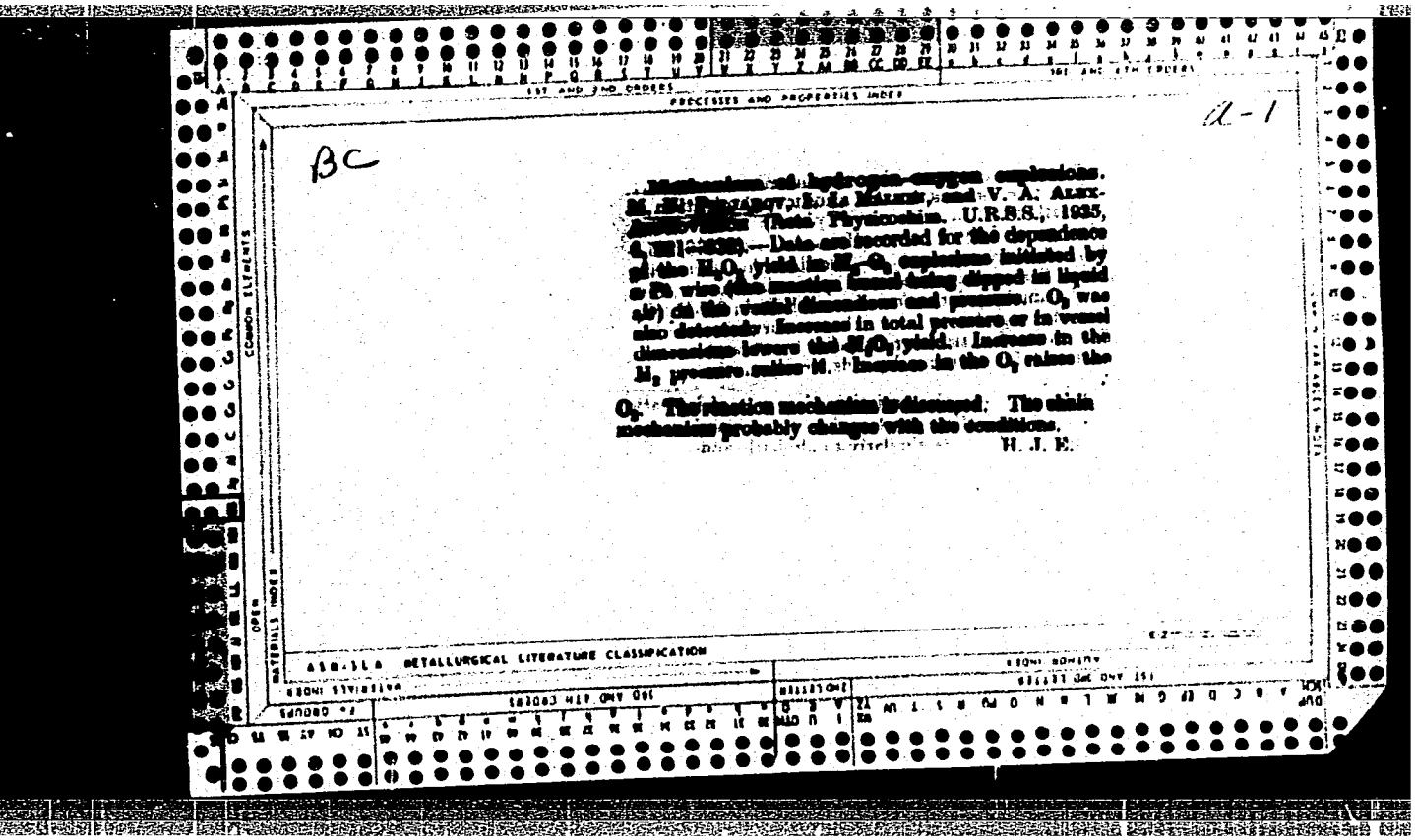
Be

A-1

Heterogeneous-homogeneous catalysis. Hydrogen and oxygen in presence of platinum. III. M. V. POLJAKOV, P. M. STADNIK, and A. T. ELBERIKH (ACAD. Physicochim. U.R.S.S., 1935, 1, 817—820; cf. this vol., 558).—Interaction of H_2 and O_2 on a Pt wire at 490—497° leads to formation of H_2O_2, yield depending in the same manner on the H_2 pressure as does that in the homogeneous explosive reaction. The mechanism in the two cases is the same, the heterogeneous process initiating homogeneous H_2O_2 formation. The no. of active centres, and hence the abs. H_2O_2 yield, is much greater in the explosive reaction. H. J. E.

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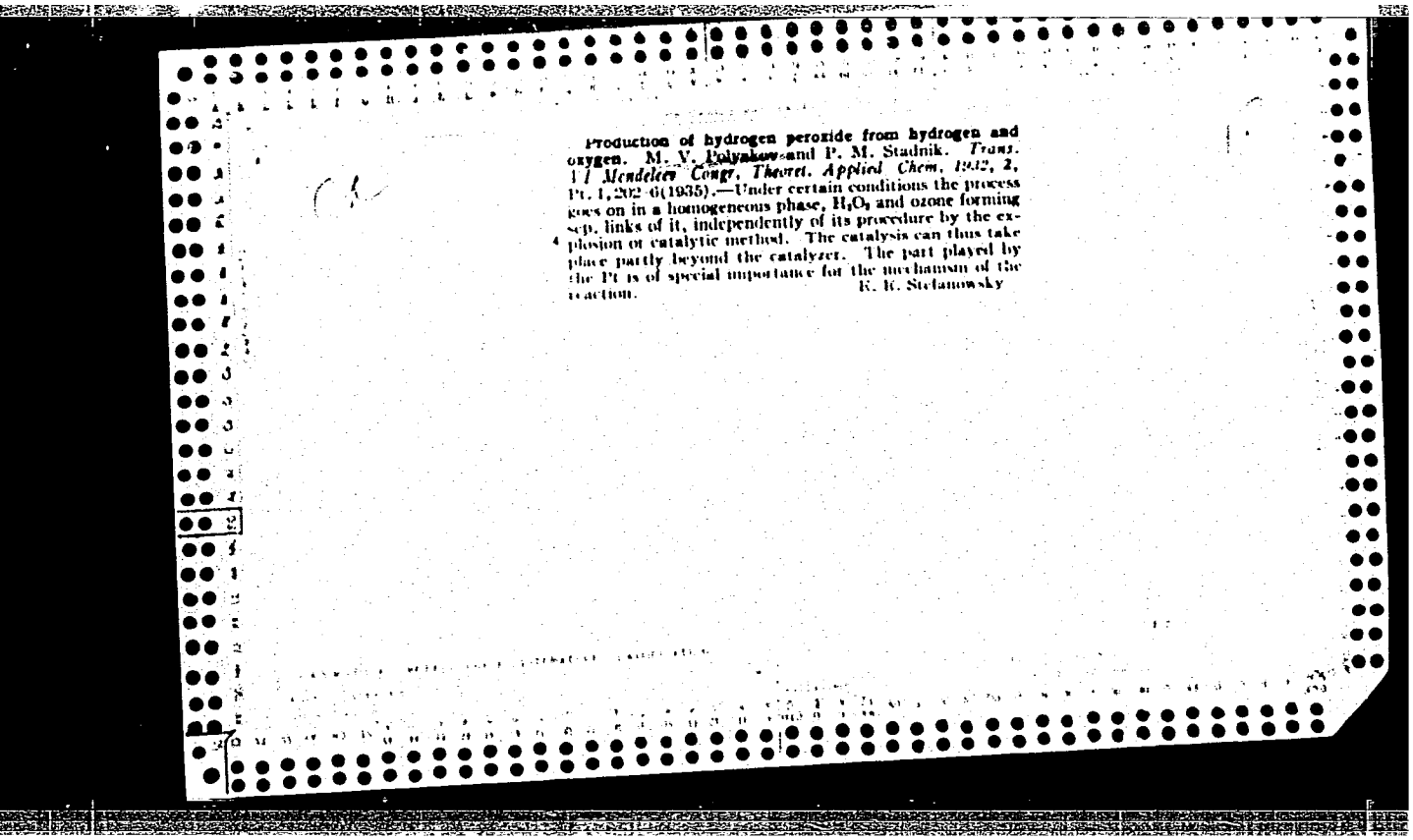
BC

Mechanism of hydrogen-oxygen explosions. [illegible] and V. A. Alexeyev. (Trans. Physicochim. U.R.S.S., 1935, [illegible]).—Data are recorded for the dependence (a) the H_2O_2 yield in H_2–O_2 explosions initiated by an [illegible] wire discharge, the bulb being dipped in liquid air, (b) the vessel dimensions and pressure of O_2 was also determined. Increase in total pressure or in vessel dimensions lowers the H_2O_2 yield. Increase in the H_2 pressure raises it. Increase in the O_2 raises the O_2. The reaction mechanism is discussed. The chain mechanism probably changes with the conditions.

H. J. E.

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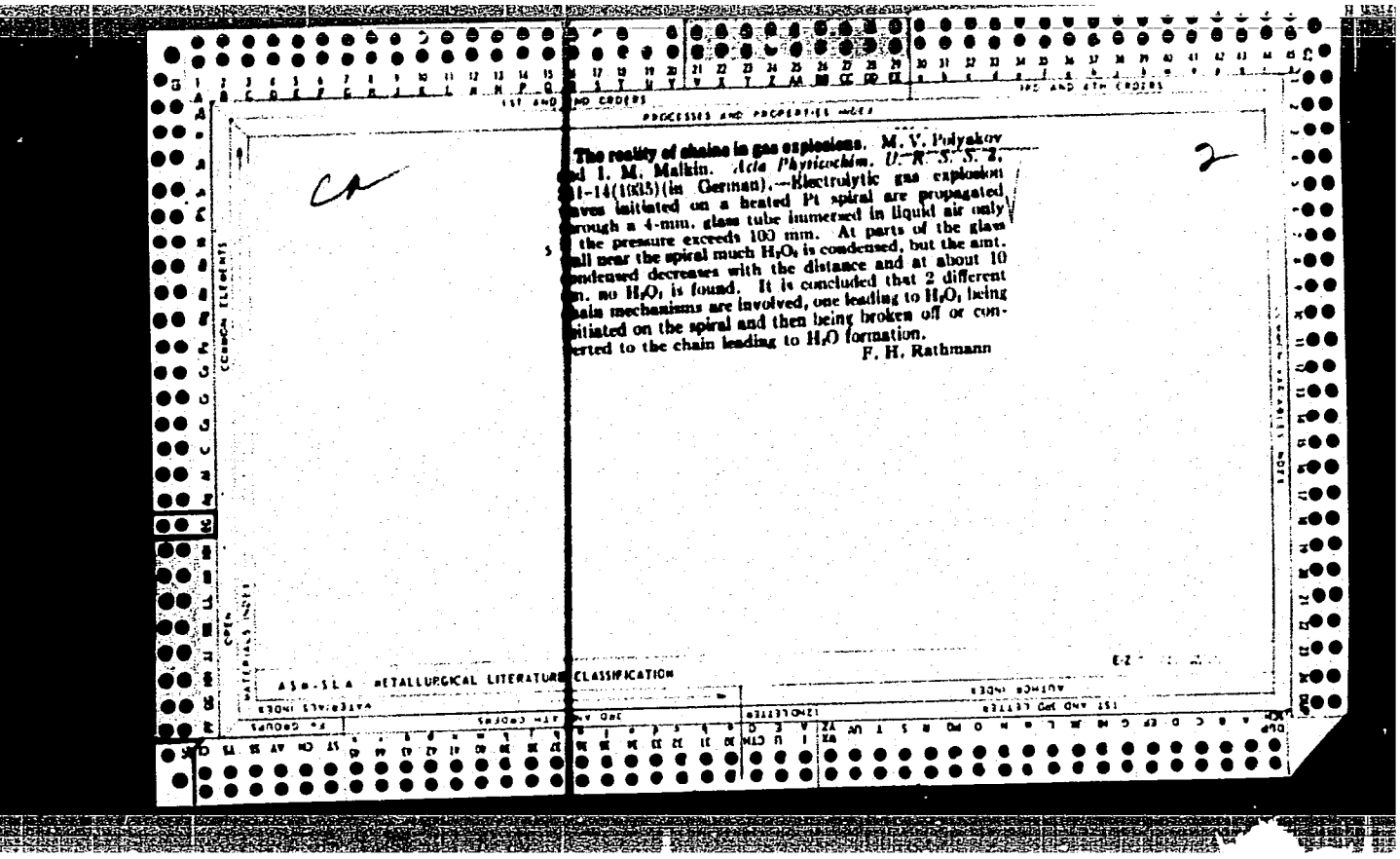


Production of hydrogen peroxide from hydrogen and oxygen. M. V. Polyakov and P. M. Stadnik. *Trans. 11 Mendeleev Congr. Theoret. Applied Chem.* 1932, 2, Pt. 1, 202–6(1935).—Under certain conditions the process goes on in a homogeneous phase, H_2O_2 and ozone forming sep. links of it, independently of its procedure by the explosion or catalytic method. The catalysis can thus take place partly beyond the catalyzer. The part played by the Pt is of special importance for the mechanism of the reaction.

K. K. Stefanowsky

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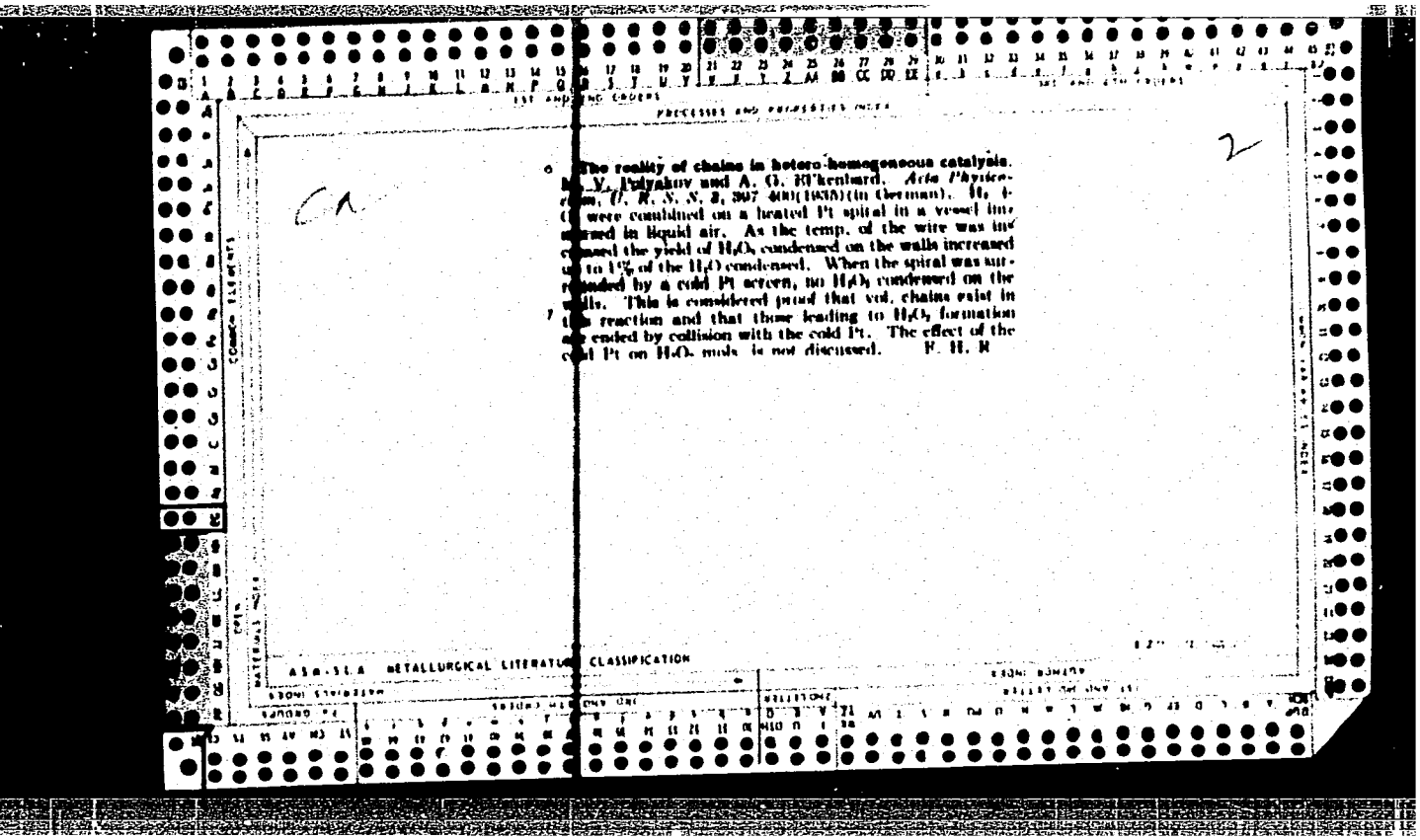


The reality of chains in gas explosions. M. V. Polyakov and I. M. Malkin. *Acta Physicochim. U. R. S. S.* 2, 1-14(1935)(in German).—Electrolytic gas explosion waves initiated on a heated Pt spiral are propagated through a 4-mm. glass tube immersed in liquid air only if the pressure exceeds 100 mm. At parts of the glass all near the spiral much H_2O_2 is condensed, but the amt. condensed decreases with the distance and at about 10 cm. no H_2O_2 is found. It is concluded that 2 different chain mechanisms are involved, one leading to H_2O_2 being initiated on the spiral and then being broken off or converted to the chain leading to H_2O formation.

F. H. Rathmann

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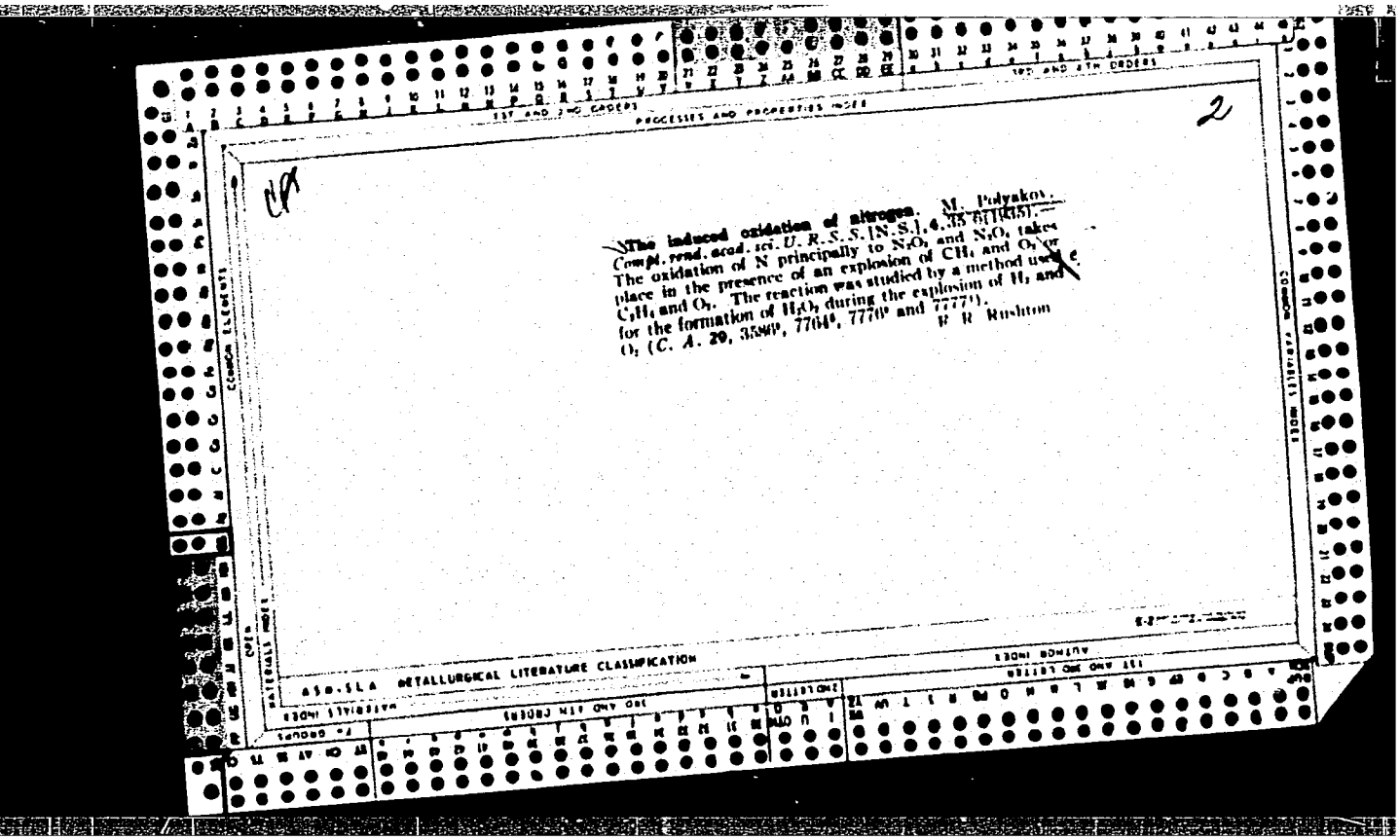
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The reality of chains in hetero-homogeneous catalysis. [illegible] V. Polyakov and A. G. Il'kenhard. *Acta Physicochim. U. R. S. S.* 8, 307-400(1938)(in German). H, O were combined on a heated Pt spiral in a vessel immersed in liquid air. As the temp. of the wire was increased the yield of H_2O_2 condensed on the walls increased up to 15% of the H_2O condensed. When the spiral was surrounded by a cold Pt screen, no H_2O_2 condensed on the walls. This is considered proof that rad. chains exist in this reaction and that those leading to H_2O_2 formation are ended by collision with the cold Pt. The effect of the cold Pt on H_2O_2 mols. is not discussed. F. H. R

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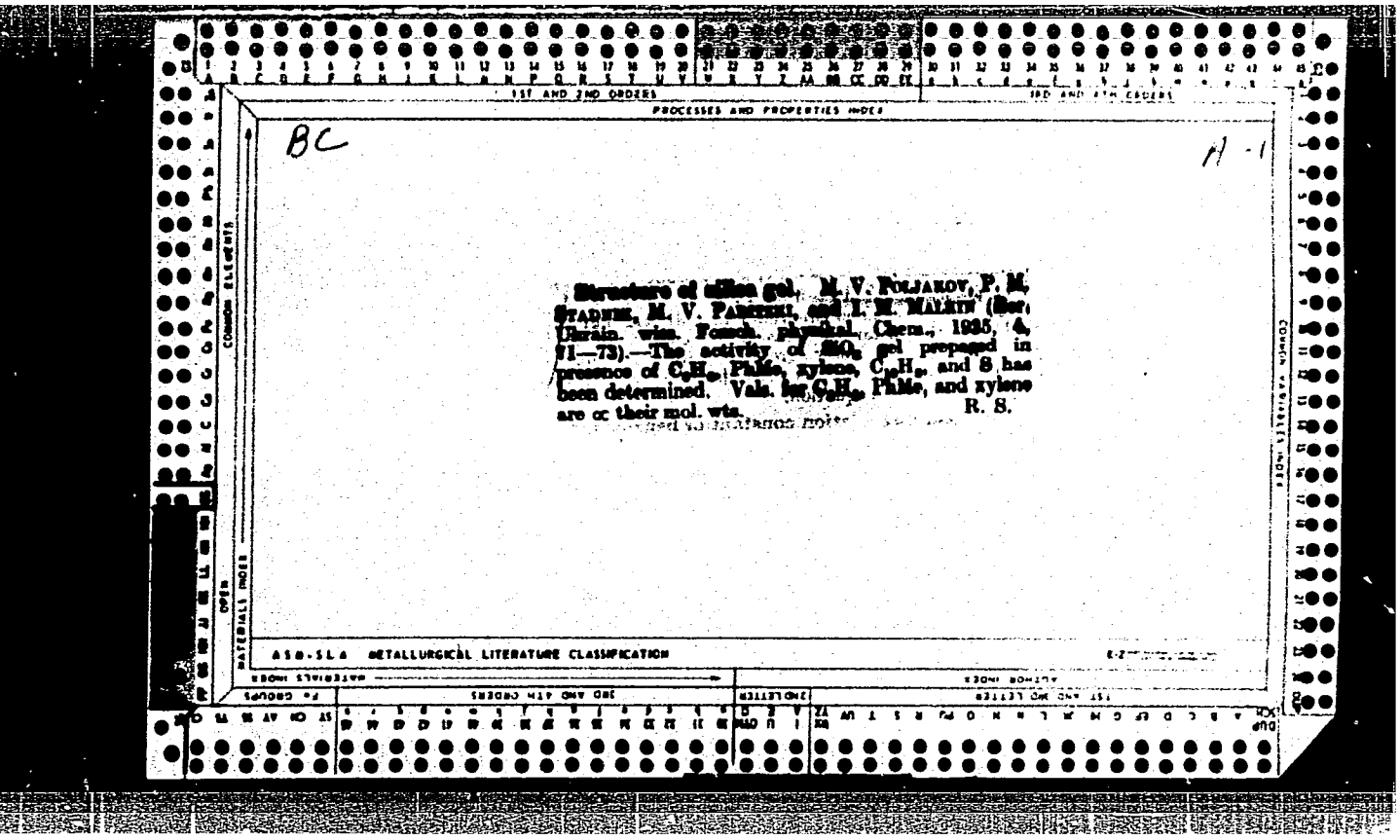
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The induced oxidation of nitrogen. M. Polyakov. *Compt. rend. acad. sci. U. R. S. S. [N. S.]*, 4, 35 (1935). The oxidation of N principally to N_2O_3 and N_2O_5 takes place in the presence of an explosion of CH_4 and O_2 or C_2H_2 and O_2. The reaction was studied by a method used for the formation of H_2O_2 during the explosion of H_2 and O_2 (*C. A.* **29**, 3589, 7704, 7770 and 7777). W. R. Ruston

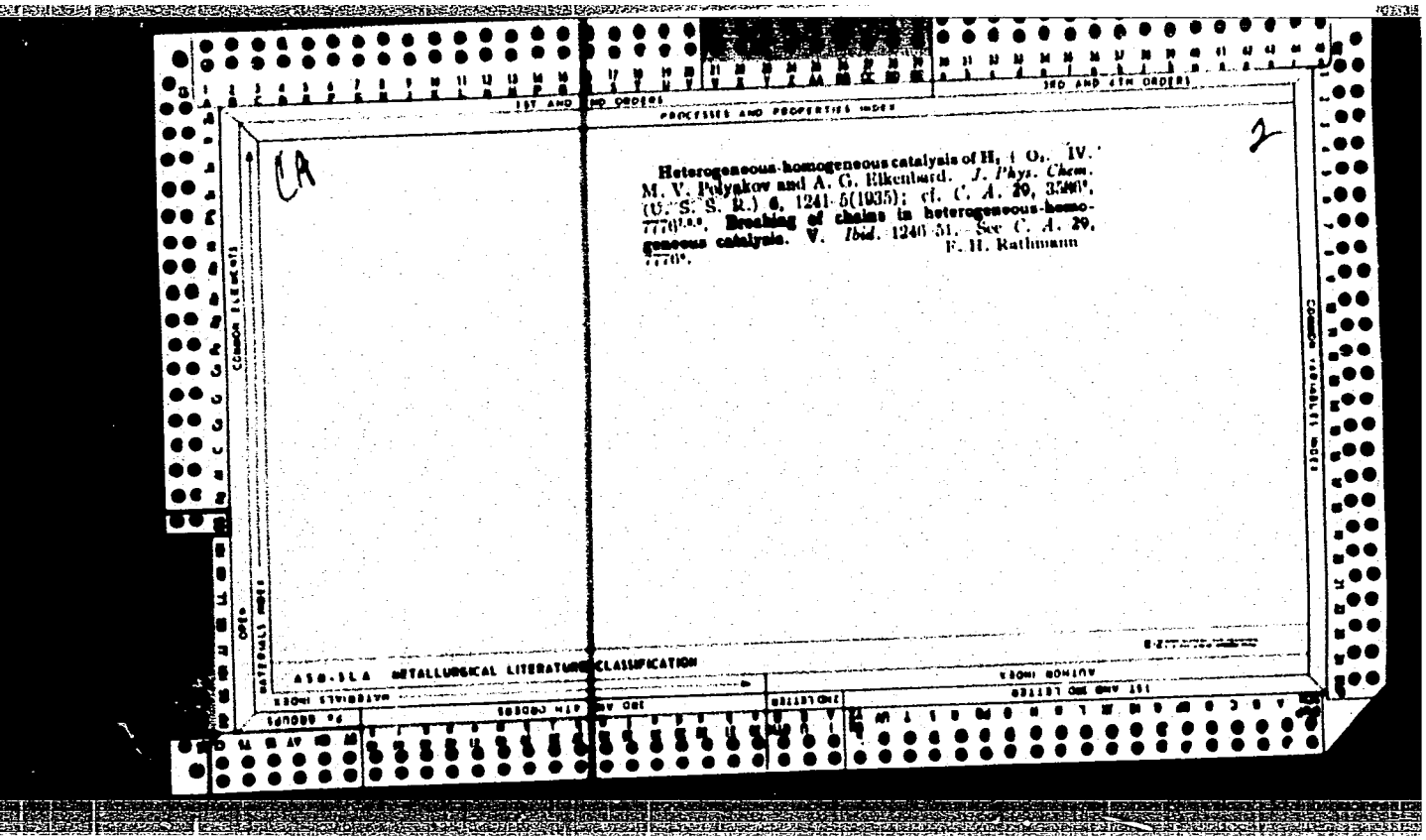
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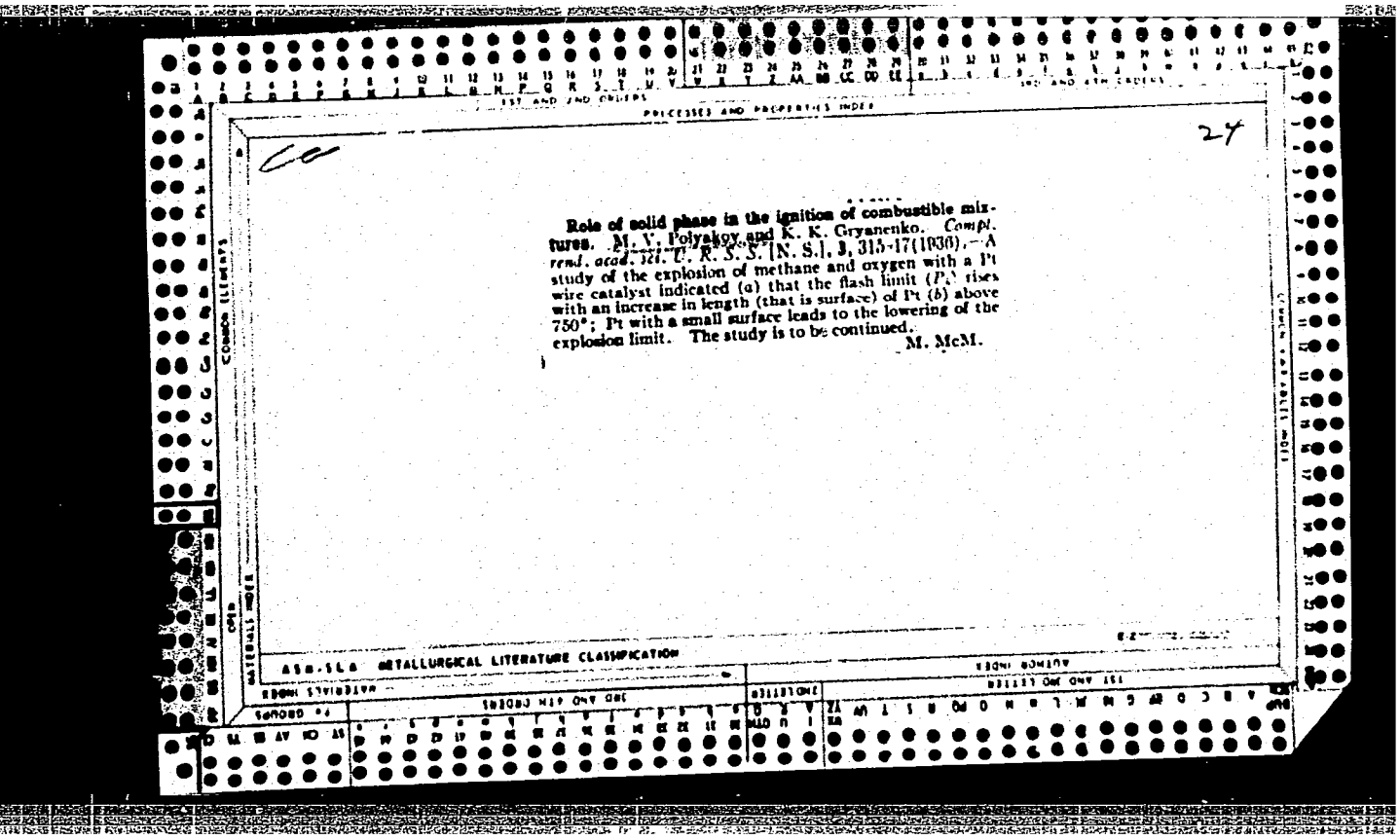
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Heterogeneous-homogeneous catalysis of $H_2 + O_2$. IV.
M. V. Polyakov and A. G. Elkenbard. *J. Phys. Chem.* (U. S. S. R.) 6, 1241-5(1935); cf. *C. A.* 29, 3760, 7770. **Breaking of chains in heterogeneous-homogeneous catalysis.** V. *Ibid.* 1246-51. See *C. A.* 29, 7770.
F. H. Rathmann

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PROCESSES AND PROPERTIES INDEX

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Ca

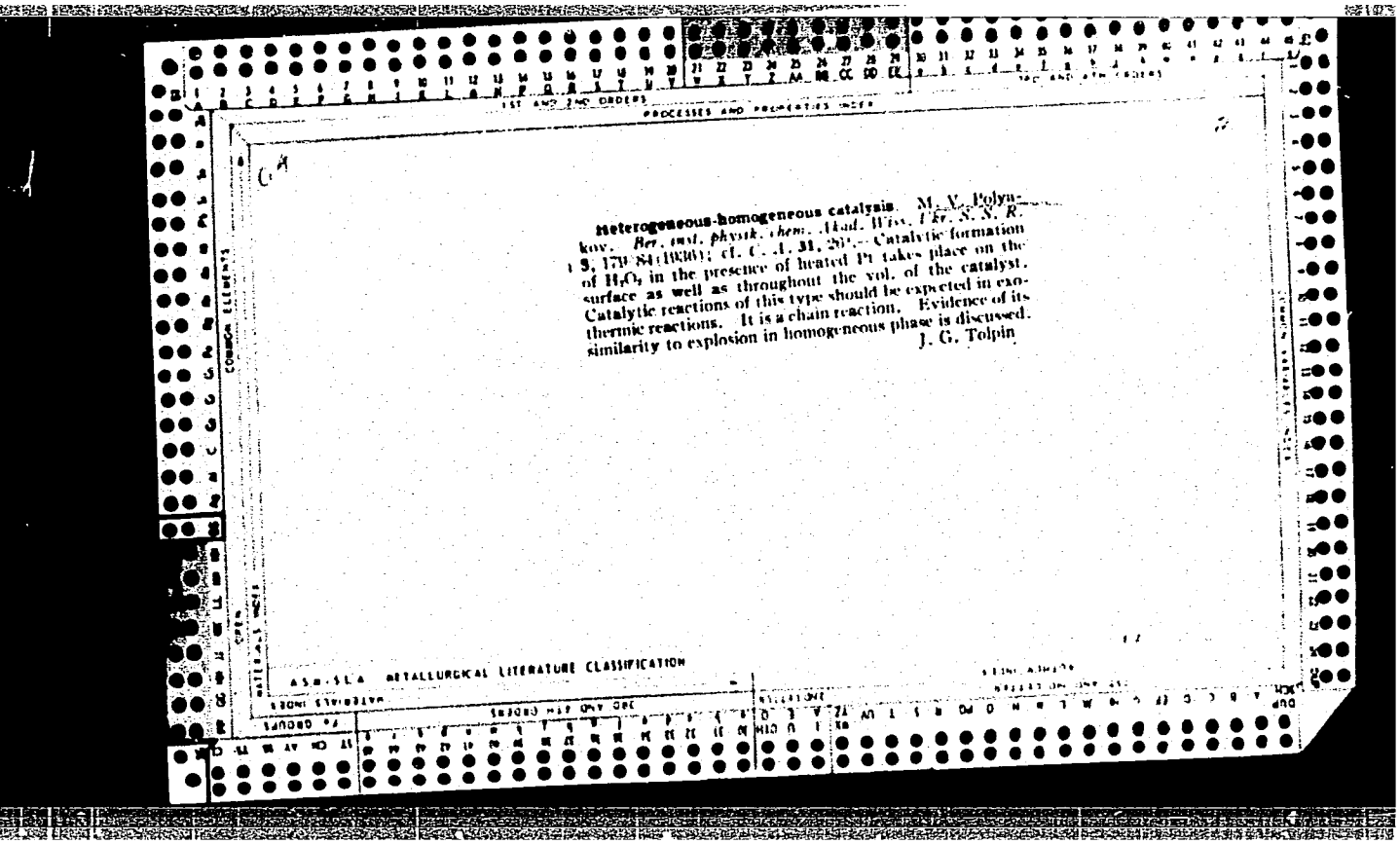
Role of solid phase in the ignition of combustible mixtures. M. V. Polyakov and K. K. Gryanenko. *Compt. rend. acad. sci. U. R. S. S. [N. S.]*, 3, 315-17(1936).—A study of the explosion of methane and oxygen with a Pt wire catalyst indicated (*a*) that the flash limit (P_1) rises with an increase in length (that is surface) of Pt (*b*) above 750°; Pt with a small surface leads to the lowering of the explosion limit. The study is to be continued.

M. McM.

A58.55.6 METALLURGICAL LITERATURE CLASSIFICATION

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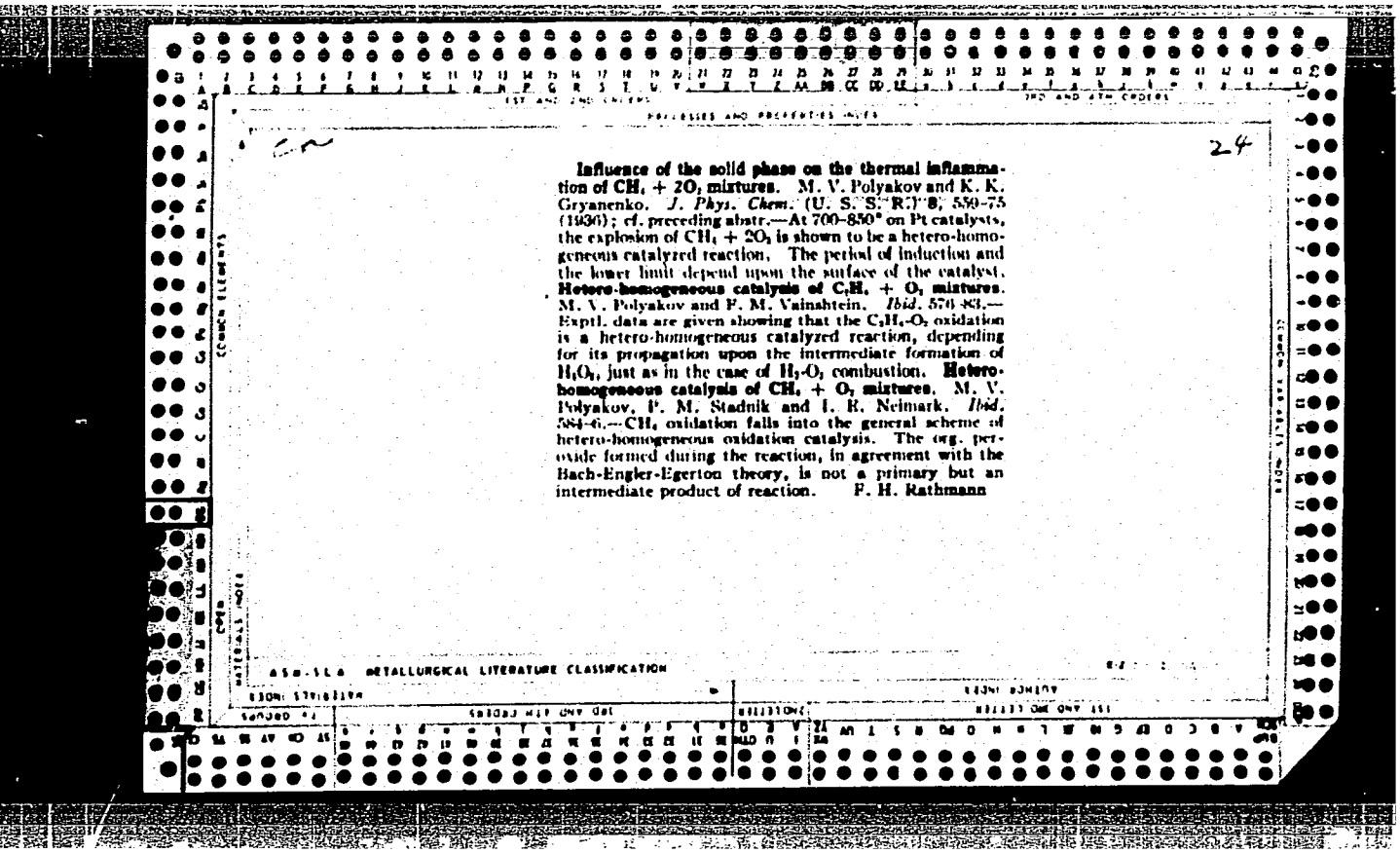


Heterogeneous-homogeneous catalysis. M. V. Polyakov. *Zhur. fiz. khimii*, 4, 179-84 (1933); cf. C. A. 31, 20[illegible]. Catalytic formation of H_2O_2 in the presence of heated Pt takes place on the surface as well as throughout the vol. of the catalyst. Catalytic reactions of this type should be expected in exothermic reactions. It is a chain reaction. Evidence of its similarity to explosion in homogeneous phase is discussed.
J. G. Tolpin

A.S.M.-S.L.A. METALLURGICAL LITERATURE CLASSIFICATION

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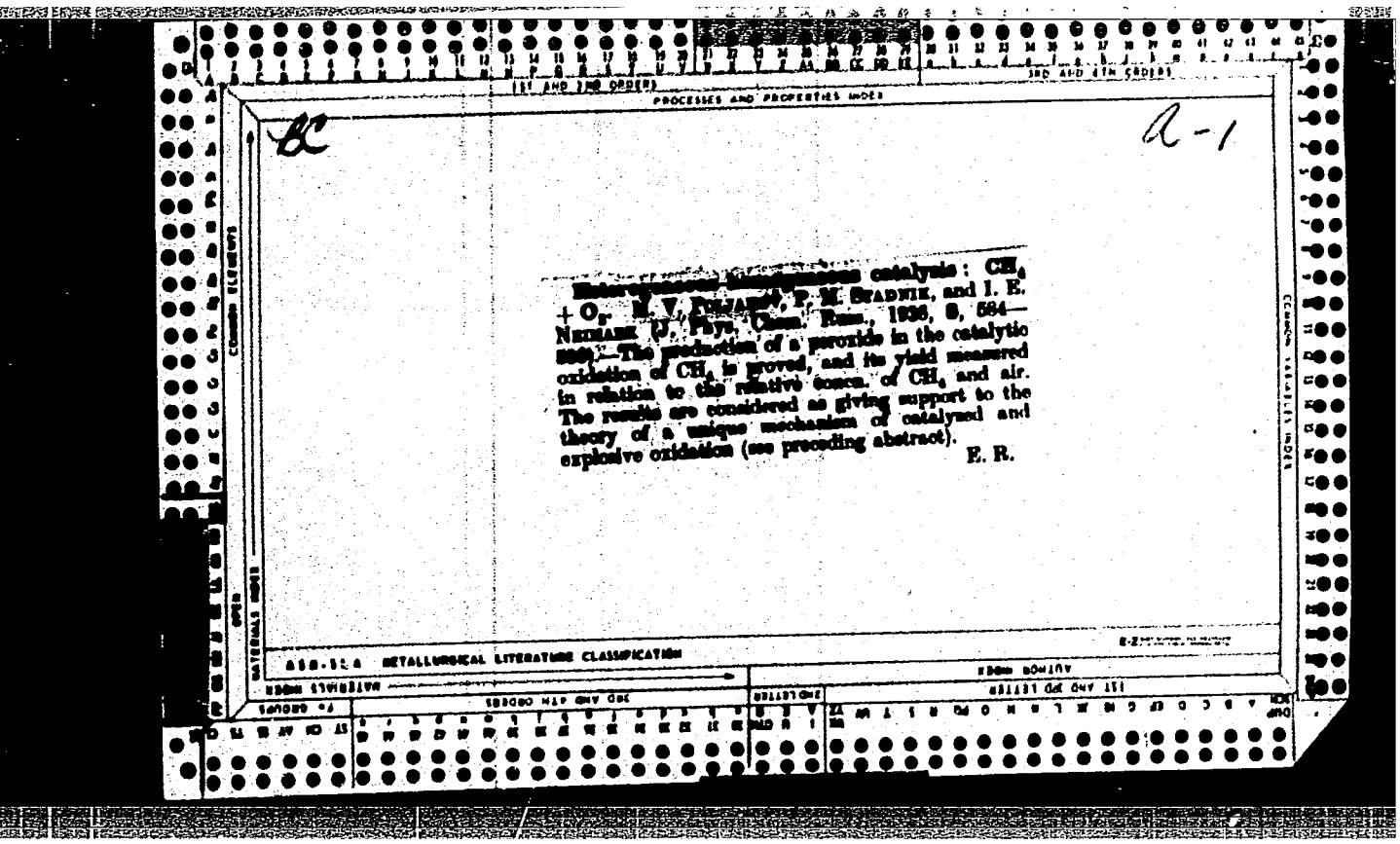
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Influence of the solid phase on the thermal inflammation of $CH_4 + 2O_2$ mixtures. M. V. Polyakov and K. K. Gryanenko. *J. Phys. Chem.* (U. S. S. R.) 8, 559–75 (1936); cf. preceding abstr.—At 700–850° on Pt catalysts, the explosion of $CH_4 + 2O_2$ is shown to be a hetero-homogeneous catalyzed reaction. The period of induction and the lower limit depend upon the surface of the catalyst. **Hetero-homogeneous catalysis of $C_2H_6 + O_2$ mixtures.** M. V. Polyakov and F. M. Vainshtein. *Ibid.* 570–83.—Exptl. data are given showing that the C_2H_6-O_2 oxidation is a hetero-homogeneous catalyzed reaction, depending for its propagation upon the intermediate formation of H_2O_2, just as in the case of H_2-O_2 combustion. **Hetero-homogeneous catalysis of $CH_4 + O_2$ mixtures.** M. V. Polyakov, P. M. Stadnik and I. R. Neimark. *Ibid.* 584–6.—CH_4 oxidation falls into the general scheme of hetero-homogeneous oxidation catalysis. The org. peroxide formed during the reaction, in agreement with the Bach-Engler-Egerton theory, is not a primary but an intermediate product of reaction. F. H. Rathmann

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PROCESSES AND PROPERTIES INDEX

A-1

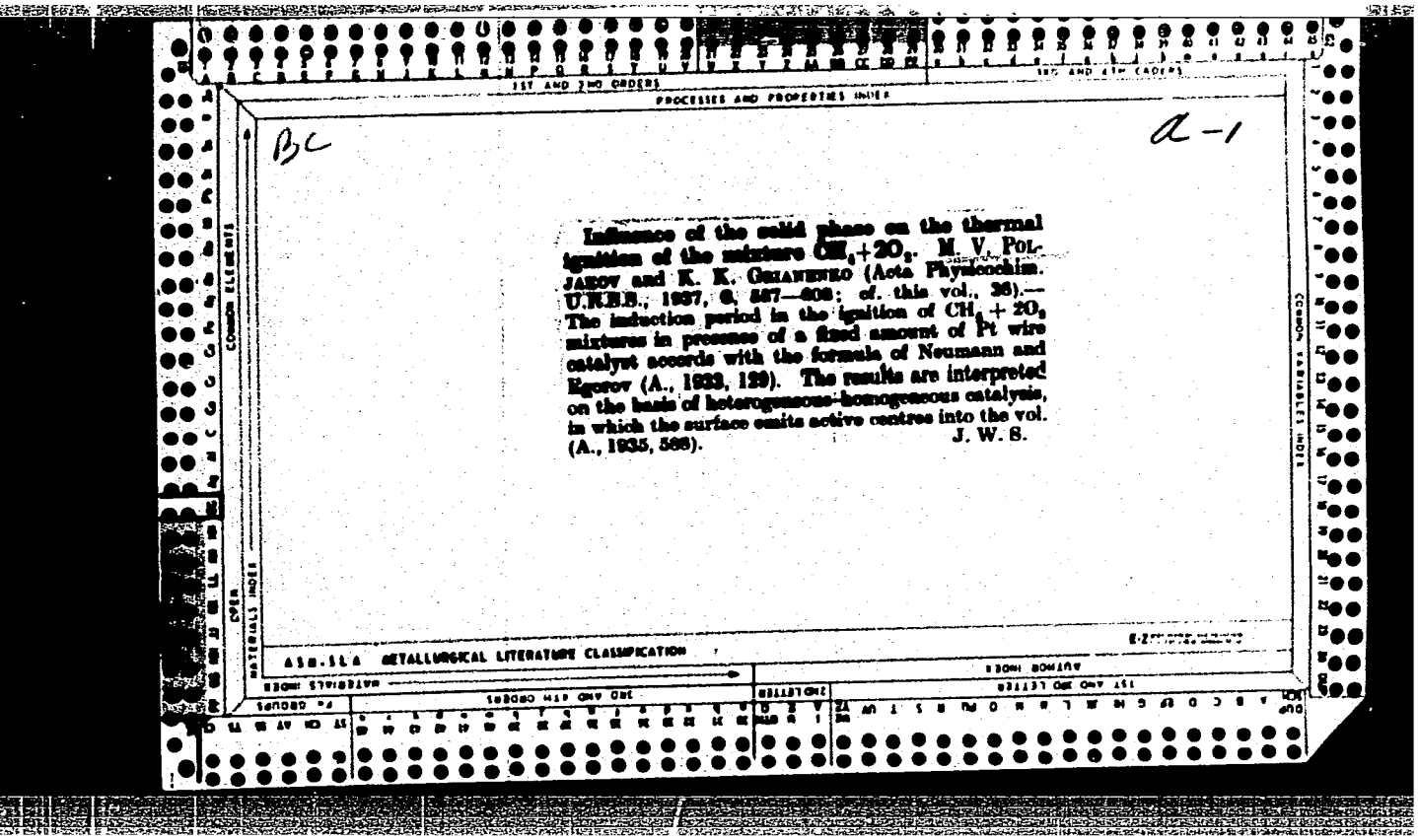
Heterogeneous-homogeneous catalysis: $CH_4 + O_2$. M. V. Polyakov, P. M. Stadnik, and I. E. Neimark (J. Phys. Chem. Russ., 1956, 8, 564—569).—The production of a peroxide in the catalytic oxidation of CH_4 is proved, and its yield measured in relation to the relative concn. of CH_4 and air. The results are considered as giving support to the theory of a unique mechanism of catalysed and explosive oxidation (see preceding abstract).

E. R.

METALLURGICAL LITERATURE CLASSIFICATION

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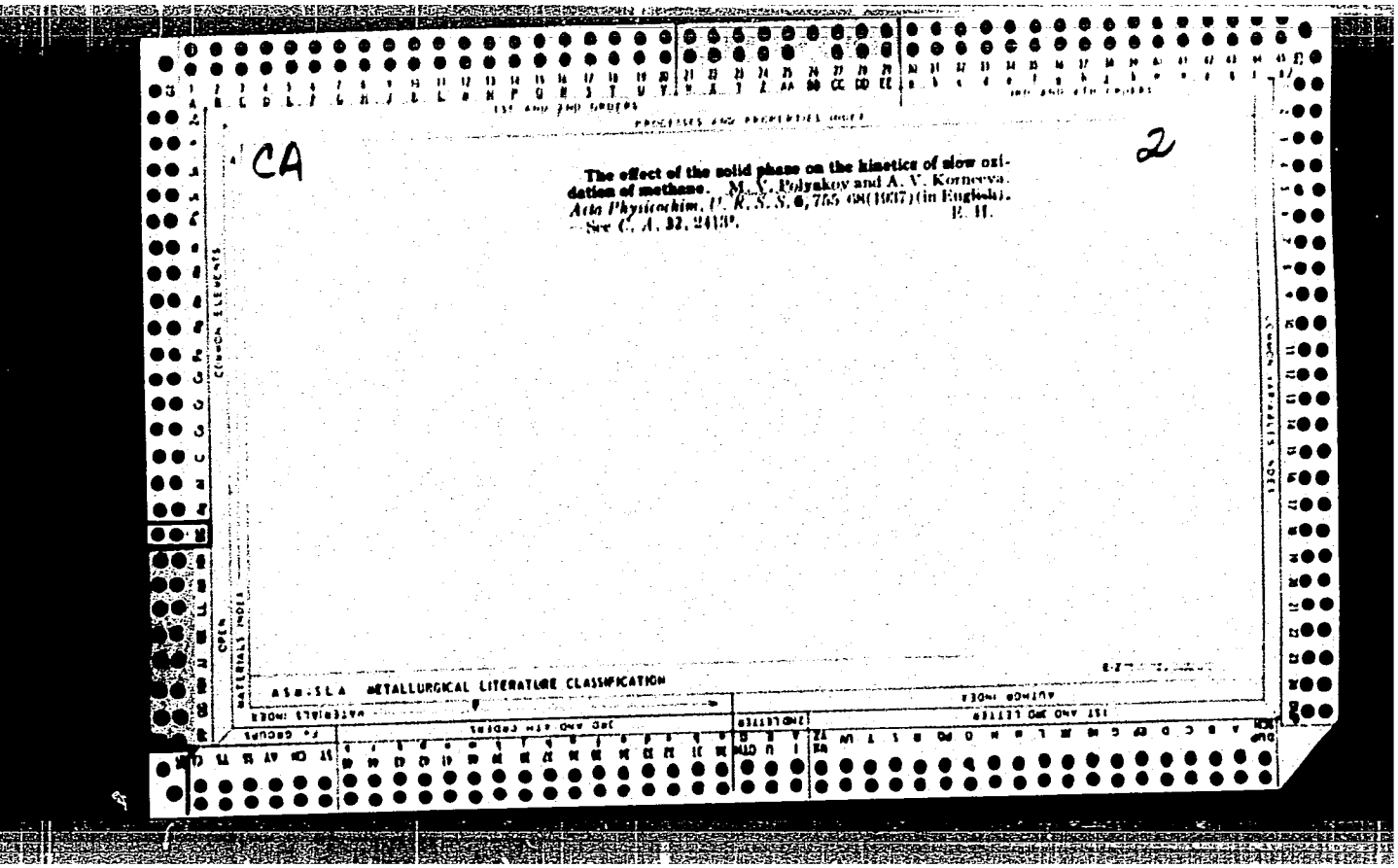
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A-1

Influence of the solid phase on the thermal ignition of the mixture CH_4+2O_2. M. V. POLJAKOV and K. K. GRIAZNENKO (Acta Physicochim. U.R.S.S., 1937, 6, 887—908; cf. this vol., 36).—The induction period in the ignition of $CH_4 + 2O_2$ mixtures in presence of a fixed amount of Pt wire catalyst accords with the formula of Neumann and Egerov (A., 1928, 129). The results are interpreted on the basis of heterogeneous-homogeneous catalysis, in which the surface emits active centres into the vol. (A., 1935, 586). J. W. S.

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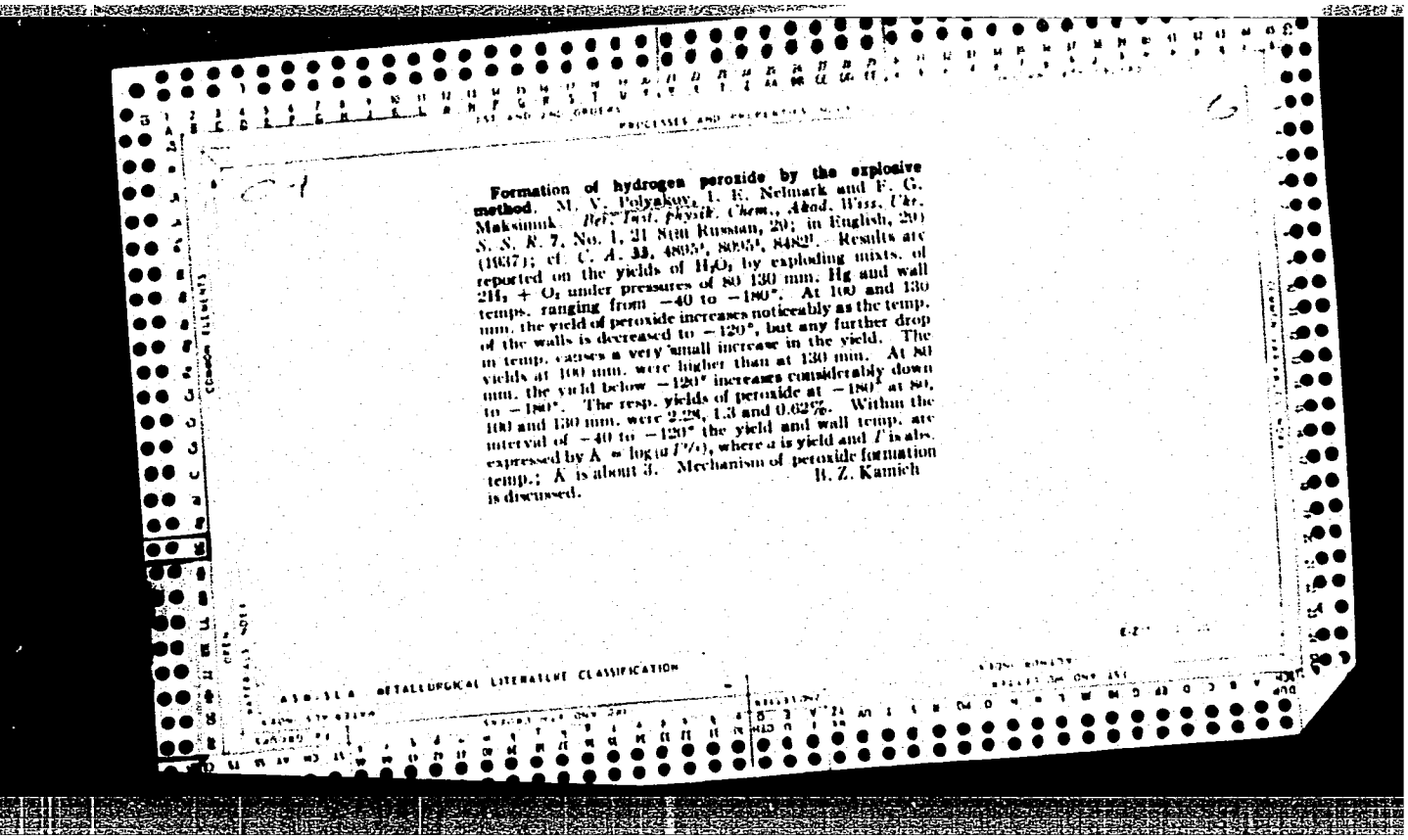
2

The effect of the solid phase on the kinetics of slow oxidation of methane. M. C. Polyakov and A. V. Korneeva. *Acta Physicochim. U. R. S. S.* 6, 755-68(1937)(in English). R. H.
See C. A. 32, 2413⁹.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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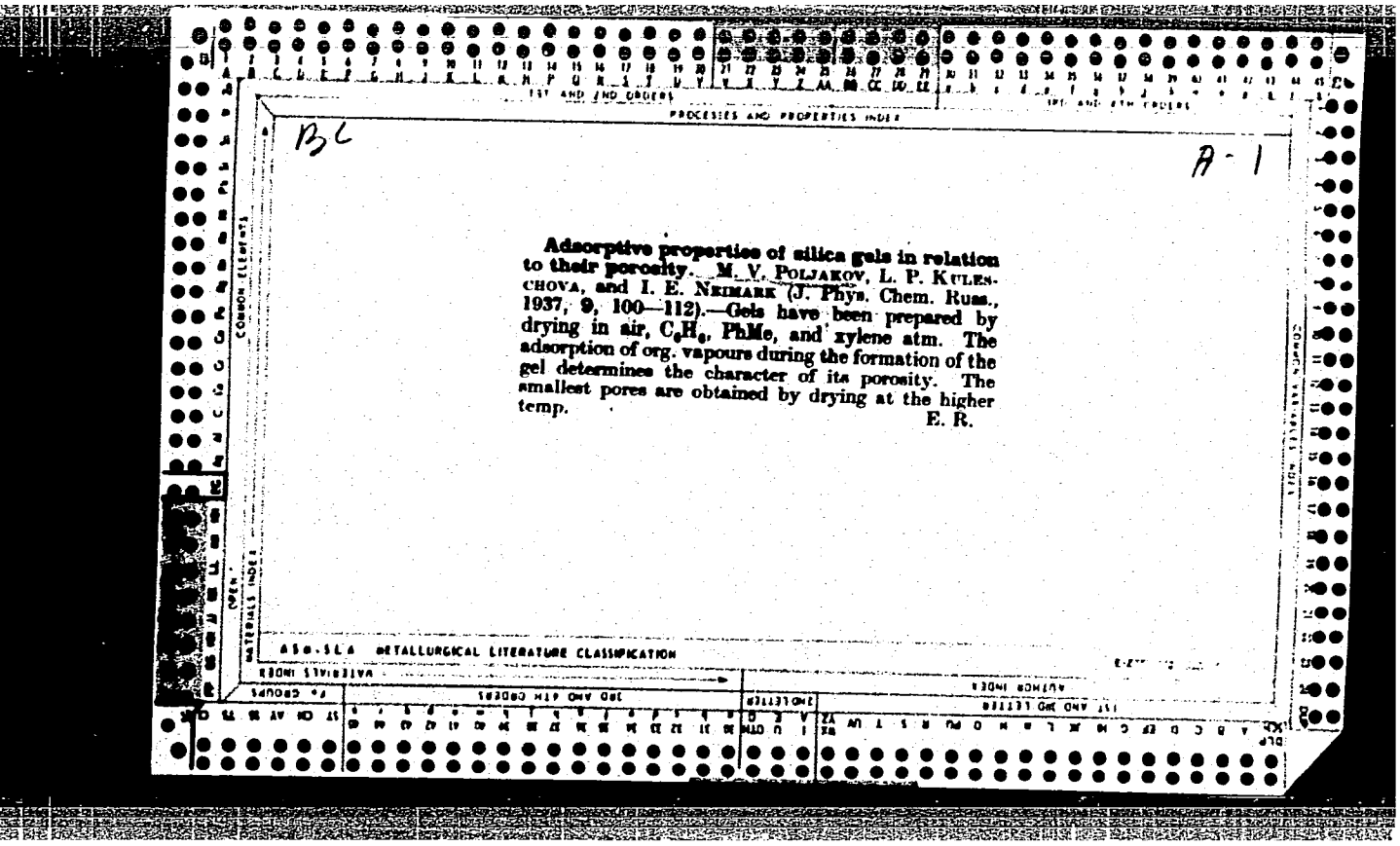
Formation of hydrogen peroxide by the explosive method. M. V. Polyakov, I. E. Nelmark and F. G. Maksimuk. *Bel. Inst. fiziok. Chem., Akad. Wiss. Ukr. S. S. R.* 7, No. 1, 21 S(30 Russian, 29; in English, 29) (1937); cf. *C. A.* **33**, 4895⁵, 8095⁵, 8482⁹. Results are reported on the yields of H_2O_2 by exploding mixts. of $2H_2 + O_2$ under pressures of 80 130 mm. Hg and wall temps. ranging from −40 to −180°. At 100 and 130 mm. the yield of peroxide increases noticeably as the temp. of the walls is decreased to −120°, but any further drop in temp. causes a very small increase in the yield. The yields at 100 mm. were higher than at 130 mm. At 80 mm. the yield below −120° increases considerably down to −180°. The resp. yields of peroxide at −180° at 80, 100 and 130 mm. were 2.28, 1.3 and 0.62%. Within the interval of −40 to −120° the yield and wall temp. are expressed by $A = \log(a/t)$, where a is yield and t is abs. temp.; A is about 3. Mechanism of peroxide formation is discussed.

H. Z. Kamich

ASBSLA METALLURGICAL LITERATURE CLASSIFICATION

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PROCESSES AND PROPERTIES INDEX

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A-1

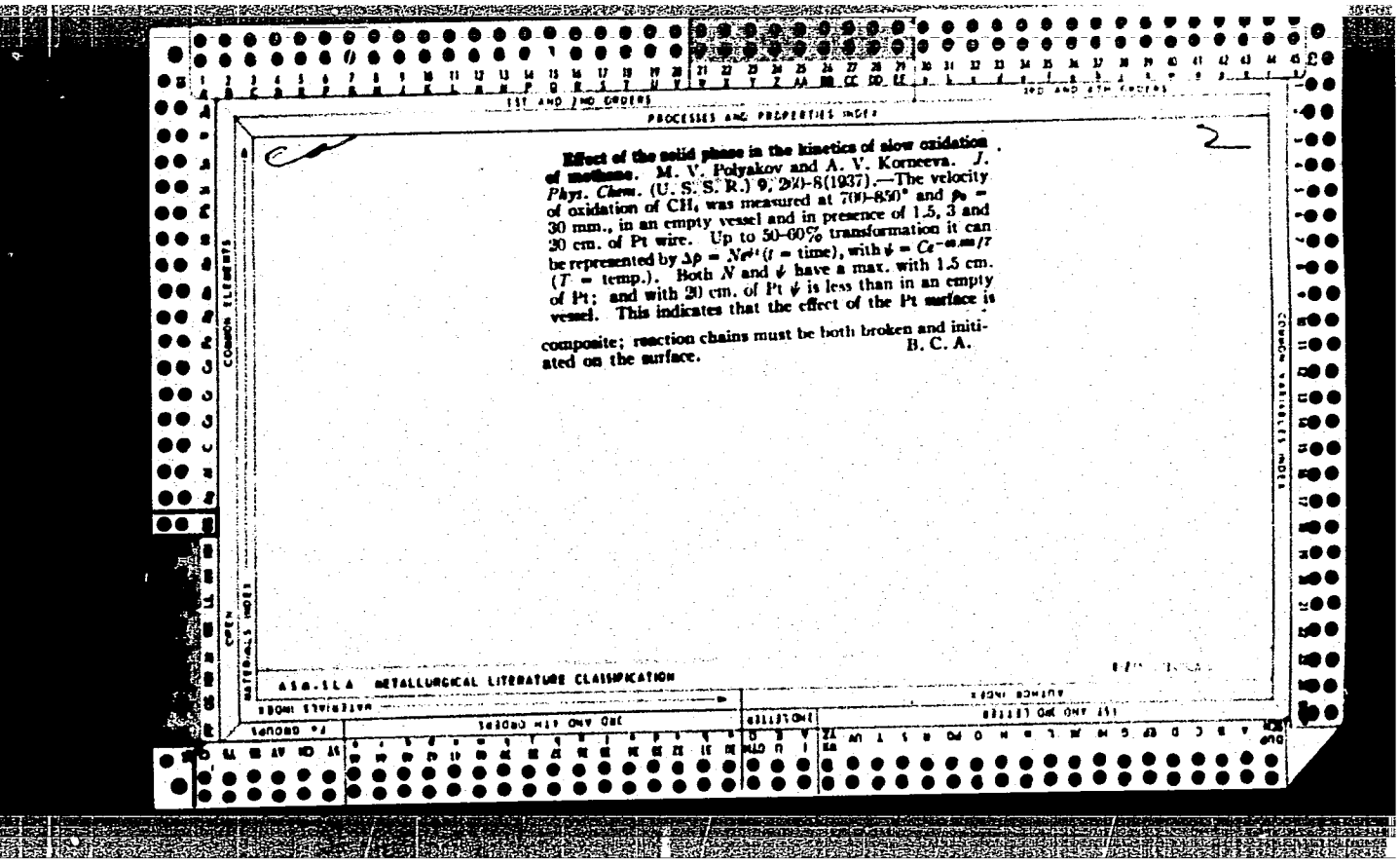
Adsorptive properties of silica gels in relation to their porosity. M. V. POLJAKOV, L. P. KULESCHOVA, and I. E. NEIMARK (J. Phys. Chem. Russ., 1937, **9**, 100—112).—Gels have been prepared by drying in air, C_6H_6, PhMe, and xylene atm. The adsorption of org. vapours during the formation of the gel determines the character of its porosity. The smallest pores are obtained by drying at the higher temp.

E. R.

A58-SLA METALLURGICAL LITERATURE CLASSIFICATION

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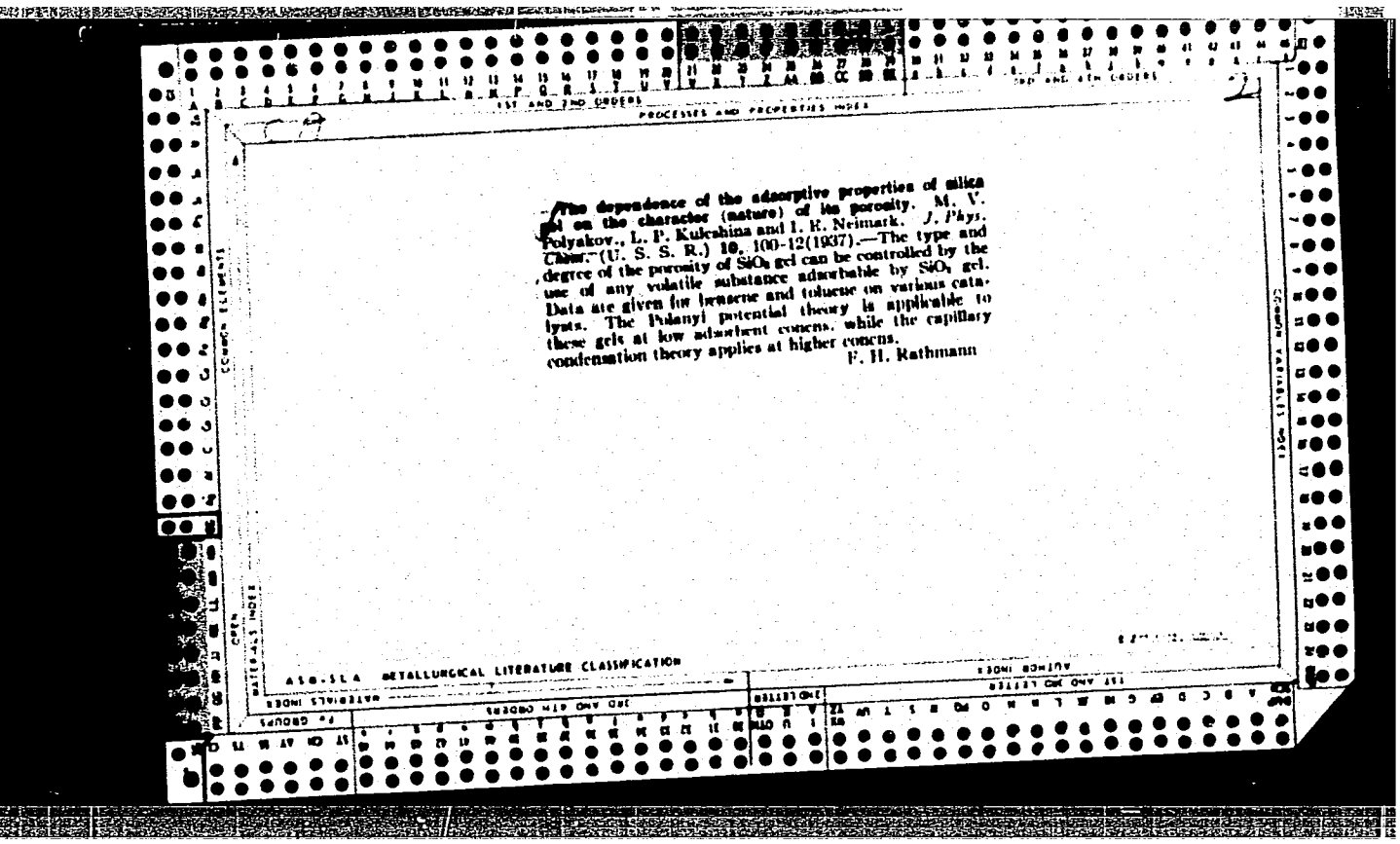
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Effect of the solid phase in the kinetics of slow oxidation of methane. M. V. Polyakov and A. V. Korneeva. *J. Phys. Chem.* (U. S. S. R.) 9, 293-8(1937).—The velocity of oxidation of CH_4 was measured at 700–850° and p_0 = 30 mm., in an empty vessel and in presence of 1.5, 3 and 20 cm. of Pt wire. Up to 50–60% transformation it can be represented by $\Delta p = Ne^{\psi t}$ (t = time), with $\psi = Ce^{-a.m/T}$ (T = temp.). Both N and ψ have a max. with 1.5 cm. of Pt; and with 20 cm. of Pt ψ is less than in an empty vessel. This indicates that the effect of the Pt surface is composite; reaction chains must be both broken and initiated on the surface. B. C. A.

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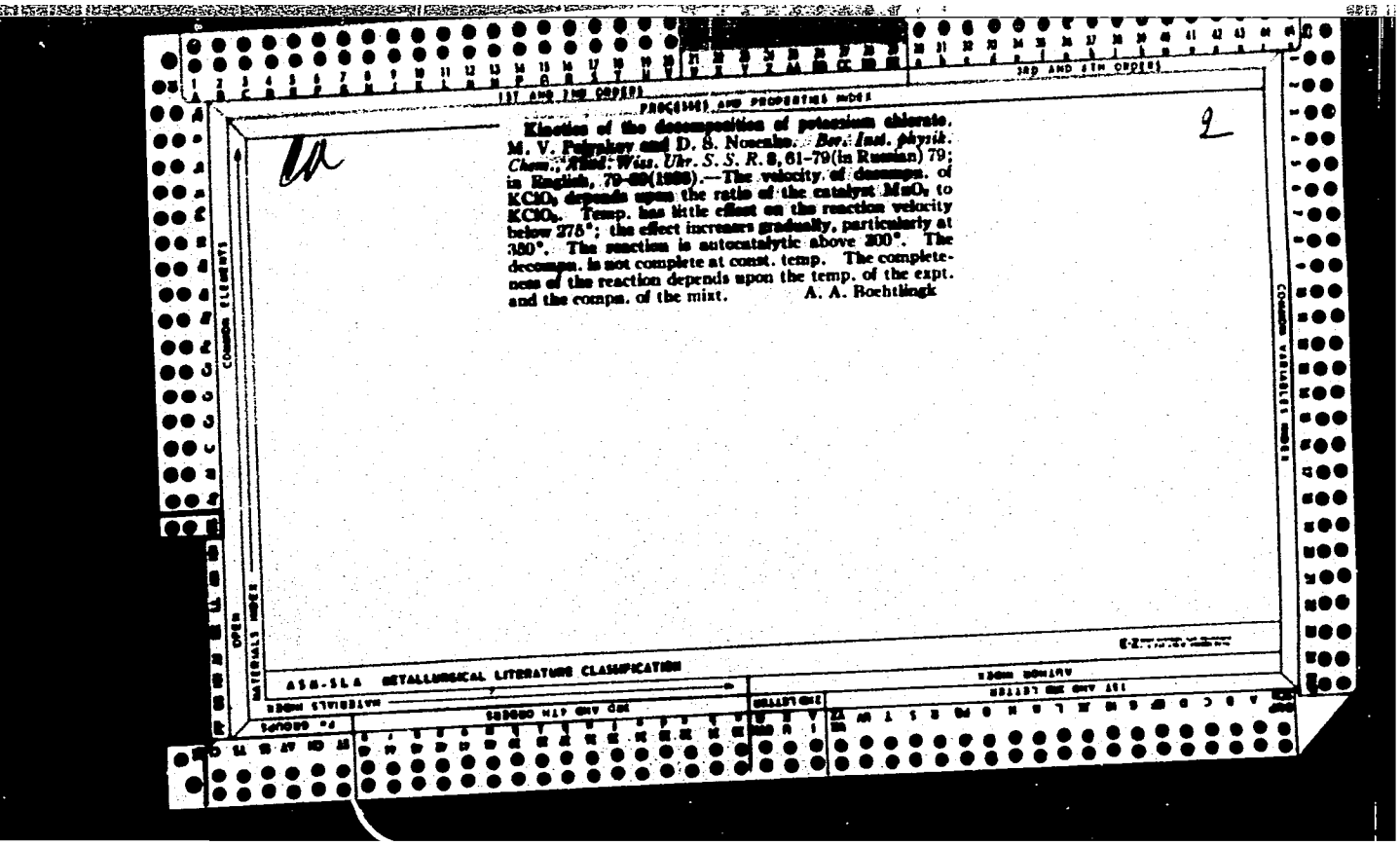
PROCESSES AND PROPERTIES INDEX

The dependence of the adsorptive properties of silica gel on the character (nature) of its porosity. M. V. Polyakov., L. P. Kukolina and I. E. Neimark. *J. Phys. Chem.* (U. S. S. R.) **10**, 100-12(1937).—The type and degree of the porosity of SiO_2 gel can be controlled by the use of any volatile substance adsorbable by SiO_2 gel. Data are given for benzene and toluene on various catalysts. The Polanyi potential theory is applicable to these gels at low adsorbent concns. while the capillary condensation theory applies at higher concns.
F. H. Rathmann

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

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Kinetics of the decomposition of potassium chlorate. M. V. Polyakov and D. S. Nuneaba. *Bor. Inst. physik. Chem. Akad. Wiss. Ukr. S. S. R.* 8, 61–79 (in Russian) 79; in English, 79–80 (1938).—The velocity of decompn. of $KClO_3$ depends upon the ratio of the catalyst MnO_2 to $KClO_3$. Temp. has little effect on the reaction velocity below 275°; the effect increases gradually, particularly at 350°. The reaction is autocatalytic above 300°. The decompn. is not complete at const. temp. The completeness of the reaction depends upon the temp. of the expt. and the compn. of the mixt. A. A. Boehtlingk

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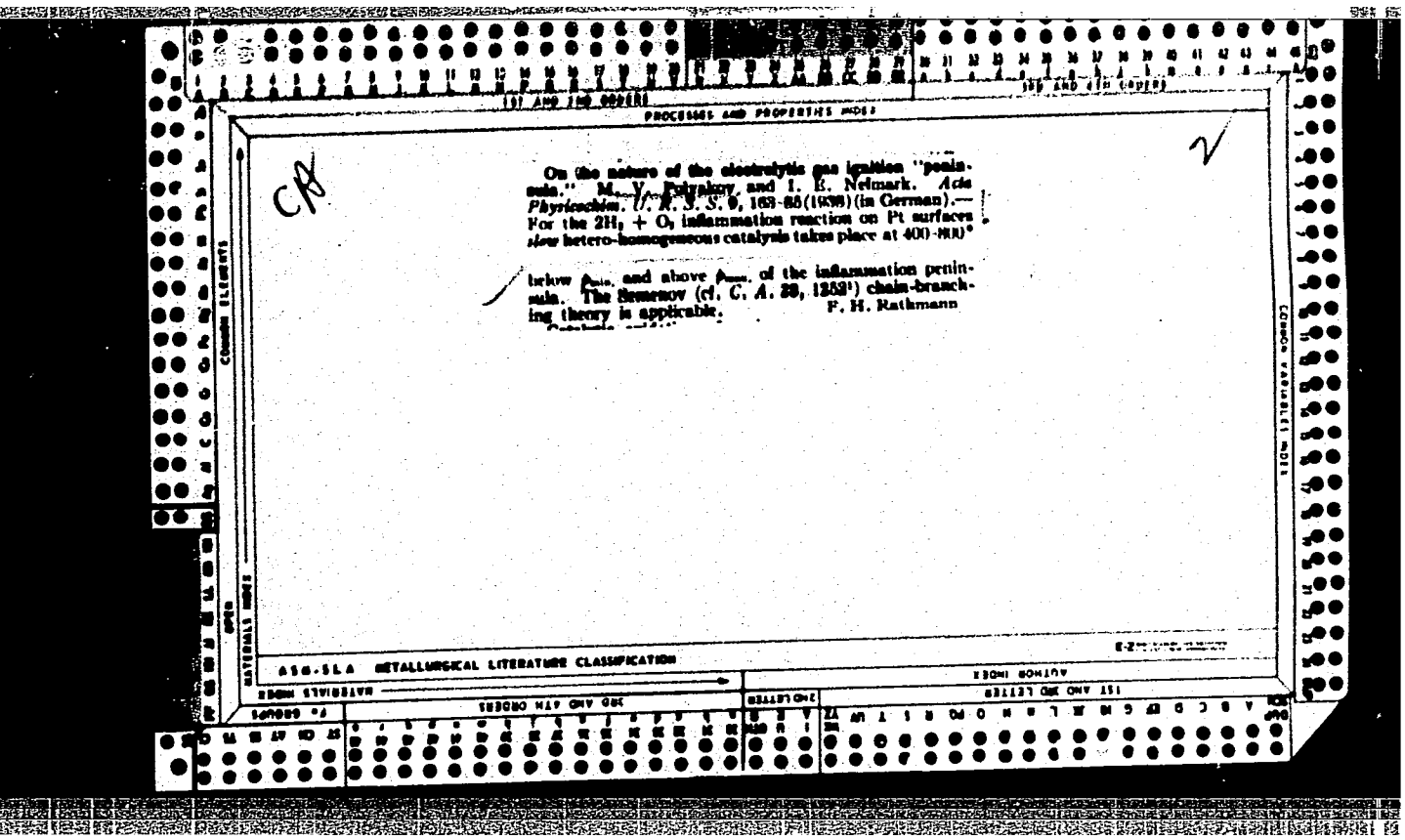
POLYAKOV, M. V.

Mechanism of the formation of hydrogen peroxide during the explosive and catalytic oxidation of marsh gas. M. V. Polyakov. *Ber. Inst. physik. Chem., Akad. Wiss. Ukr. S. S. R.* 8, 99-109 (1938); *Khim. Referat. Zhur.* 1, No. 11-12, 3-4.—A review of literature on the photochem. formation of water from marsh gas, and of different theories of the role of H_2O_2 in this process. The formation of H_2O_2 (not only during explosion, but also during catalytic oxidation of marsh gas) is discussed. The appearance of the unstable forms (OH, HO_2, H_2O_3) of intermediate products during the formation of water from O and H is a factor confirming the peroxide theory of Bach-Engler.

W. R. Henn

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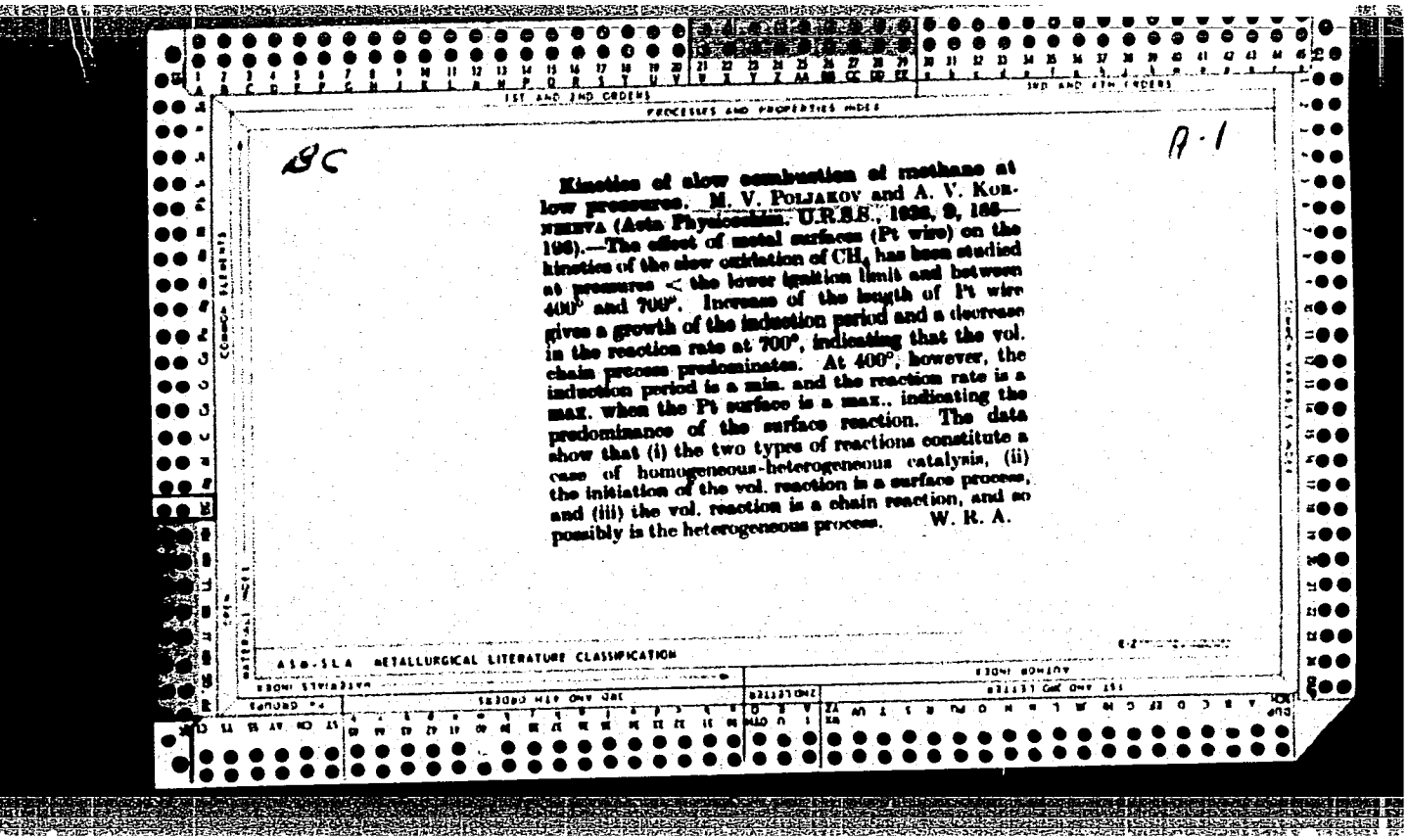


On the nature of the electrolytic gas ignition "penin-sula." M. V. Polyakov and I. E. Nelmark. *Acta Physicochim. U. R. S. S.* 9, 169-86 (1938) (in German).—For the $2H_2 + O_2$ inflammation reaction on Pt surfaces *slow* hetero-homogeneous catalysis takes place at 400-800° below $p_{min.}$ and above $p_{max.}$ of the inflammation penin-sula. The Semenov (cf. *C. A.* **33**, 1252⁹) chain-branch-ing theory is applicable.

F. H. Rathmann

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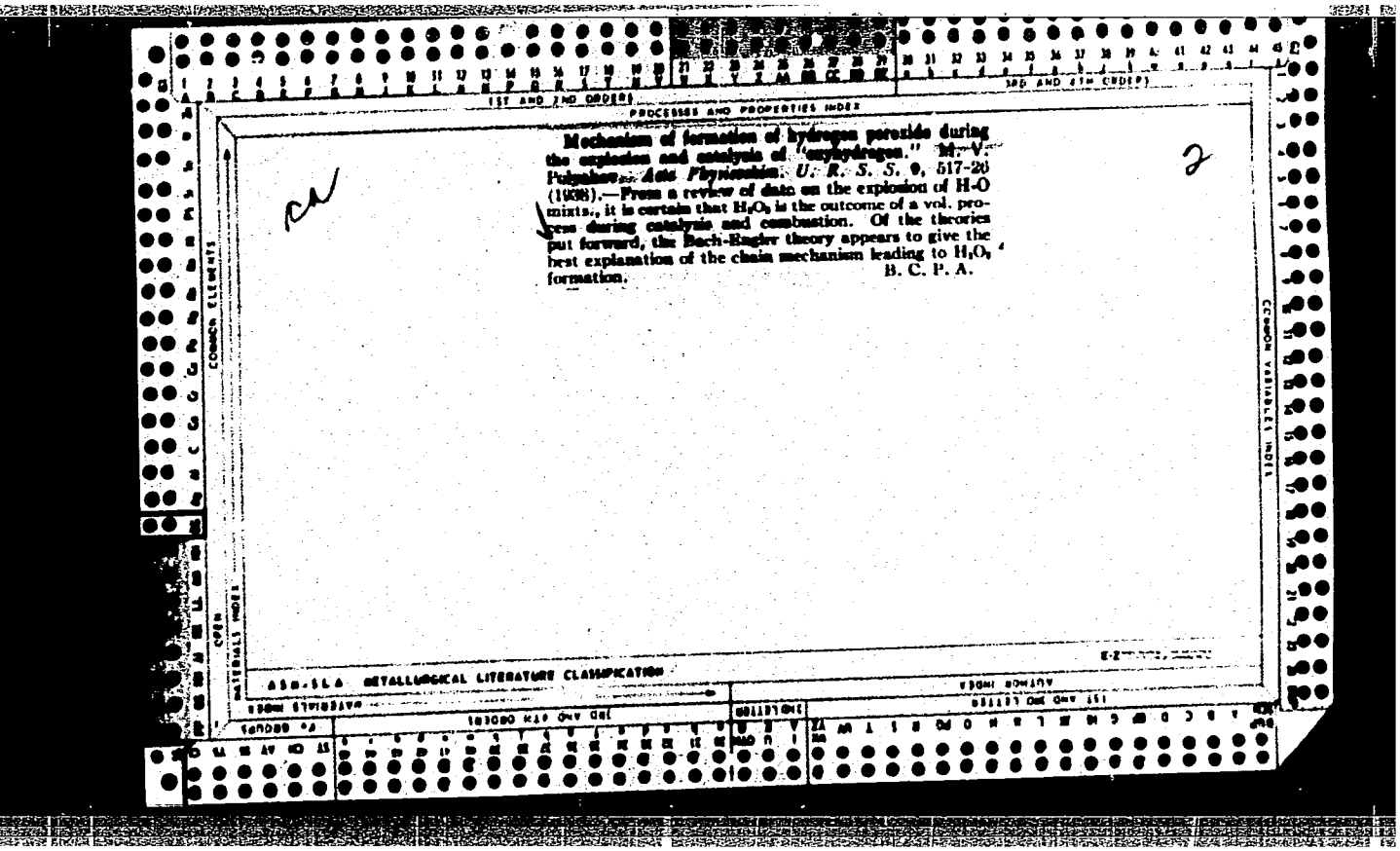
8C

A-1

Kinetics of slow combustion of methane at low pressures. M. V. POLJAKOV and A. V. KONSTANTINOVA (Acta Physicochim. U.R.S.S., 1938, 9, 185—198).—The effect of metal surfaces (Pt wire) on the kinetics of the slow oxidation of CH_4 has been studied at pressures < the lower ignition limit and between 400° and 700°. Increase of the length of Pt wire gives a growth of the induction period and a decrease in the reaction rate at 700°, indicating that the vol. chain process predominates. At 400°, however, the induction period is a min. and the reaction rate is a max. when the Pt surface is a max., indicating the predominance of the surface reaction. The data show that (i) the two types of reactions constitute a case of homogeneous-heterogeneous catalysis, (ii) the initiation of the vol. reaction is a surface process, and (iii) the vol. reaction is a chain reaction, and so possibly is the heterogeneous process. W. R. A.

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PROCESSES AND PROPERTIES INDEX

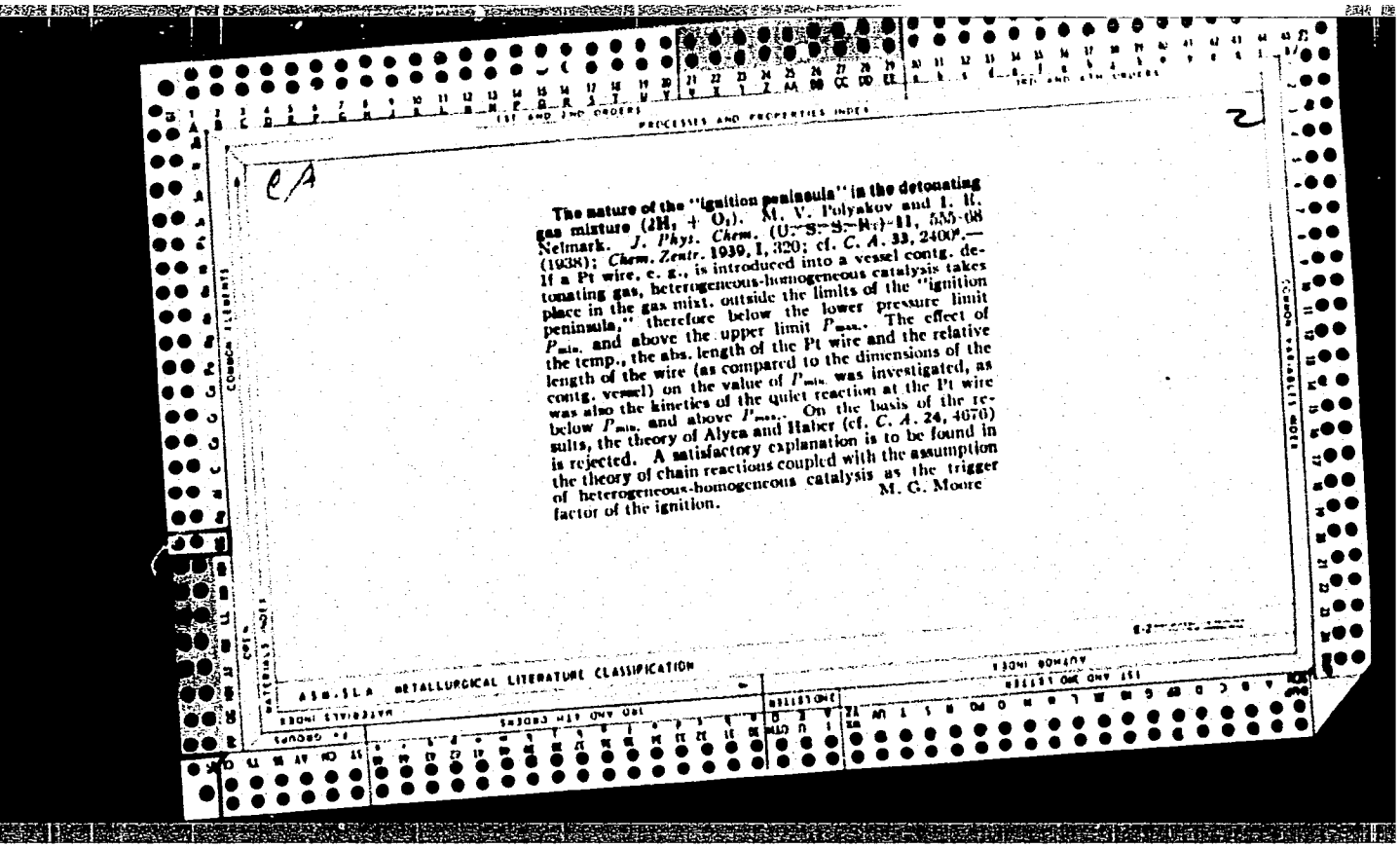
Mechanism of formation of hydrogen peroxide during the explosion and catalysis of "oxyhydrogen." M. V. Polyakov. *Acta Physicochim. U. R. S. S.* 9, 517-20 (1938).—From a review of data on the explosion of H-O mixts., it is certain that H_2O_2 is the outcome of a vol. process during catalysis and combustion. Of the theories put forward, the Bach-Engler theory appears to give the best explanation of the chain mechanism leading to H_2O_2 formation. B. C. P. A.

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ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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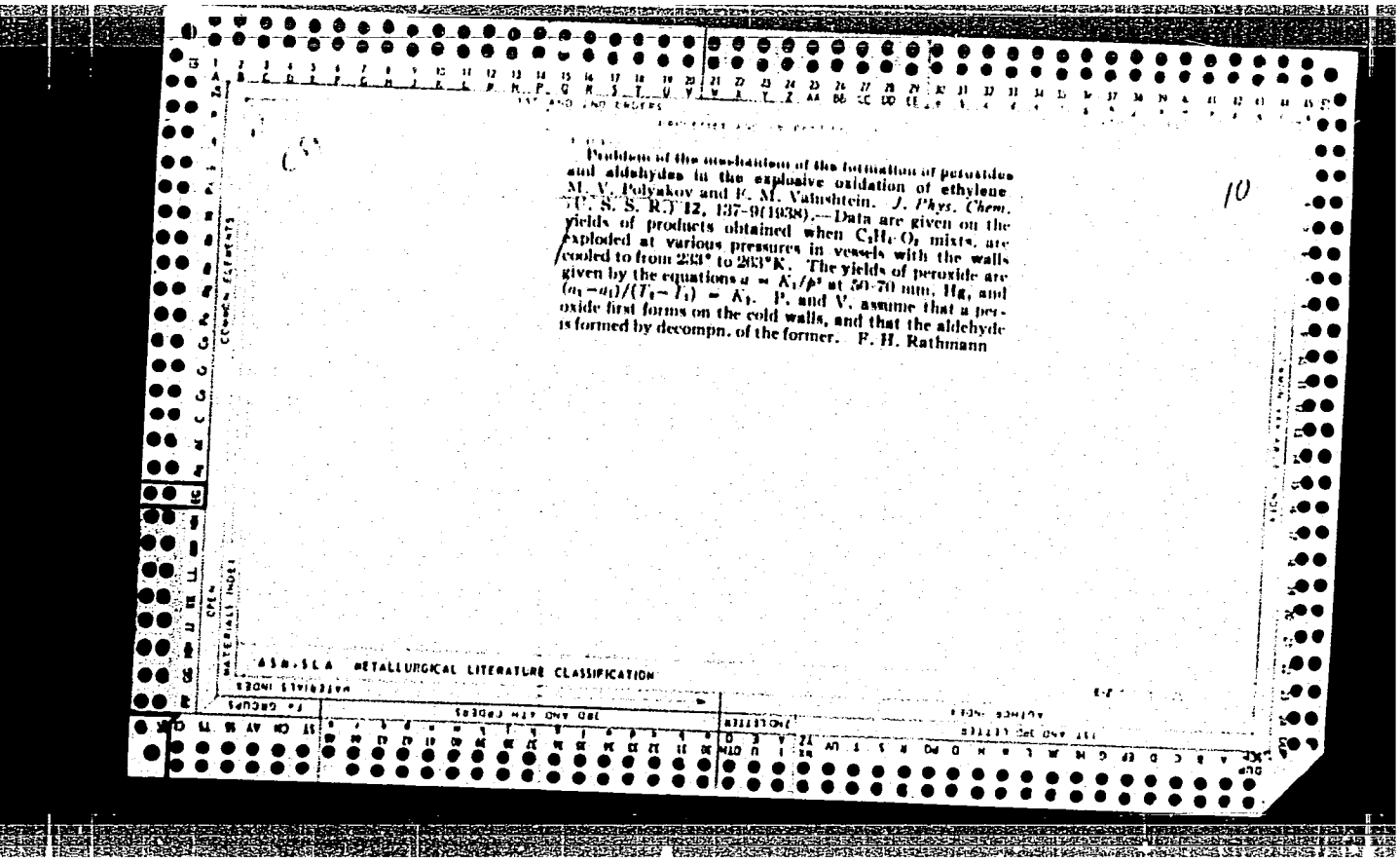
The nature of the "ignition peninsula" in the detonating gas mixture ($2H_2 + O_2$). M. V. Polyakov and I. II. Nelmark. *J. Phys. Chem.* (U.S.S.R.), 11, 555-68 (1938); *Chem. Zentr.* 1939, I, 320; cf. *C. A.* 33, 2400⁹.—If a Pt wire, e. g., is introduced into a vessel contg. detonating gas, heterogeneous-homogeneous catalysis takes place in the gas mixt. outside the limits of the "ignition peninsula," therefore below the lower pressure limit $P_{min.}$ and above the upper limit $P_{max.}$. The effect of the temp., the abs. length of the Pt wire and the relative length of the wire (as compared to the dimensions of the contg. vessel) on the value of $P_{min.}$ was investigated, as was also the kinetics of the quiet reaction at the Pt wire below $P_{min.}$ and above $P_{max.}$. On the basis of the results, the theory of Alyea and Haber (cf. *C. A.* 24, 4070) is rejected. A satisfactory explanation is to be found in the theory of chain reactions coupled with the assumption of heterogeneous-homogeneous catalysis as the trigger factor of the ignition.

M. G. Moore

A.S.M.-S.L.A. METALLURGICAL LITERATURE CLASSIFICATION

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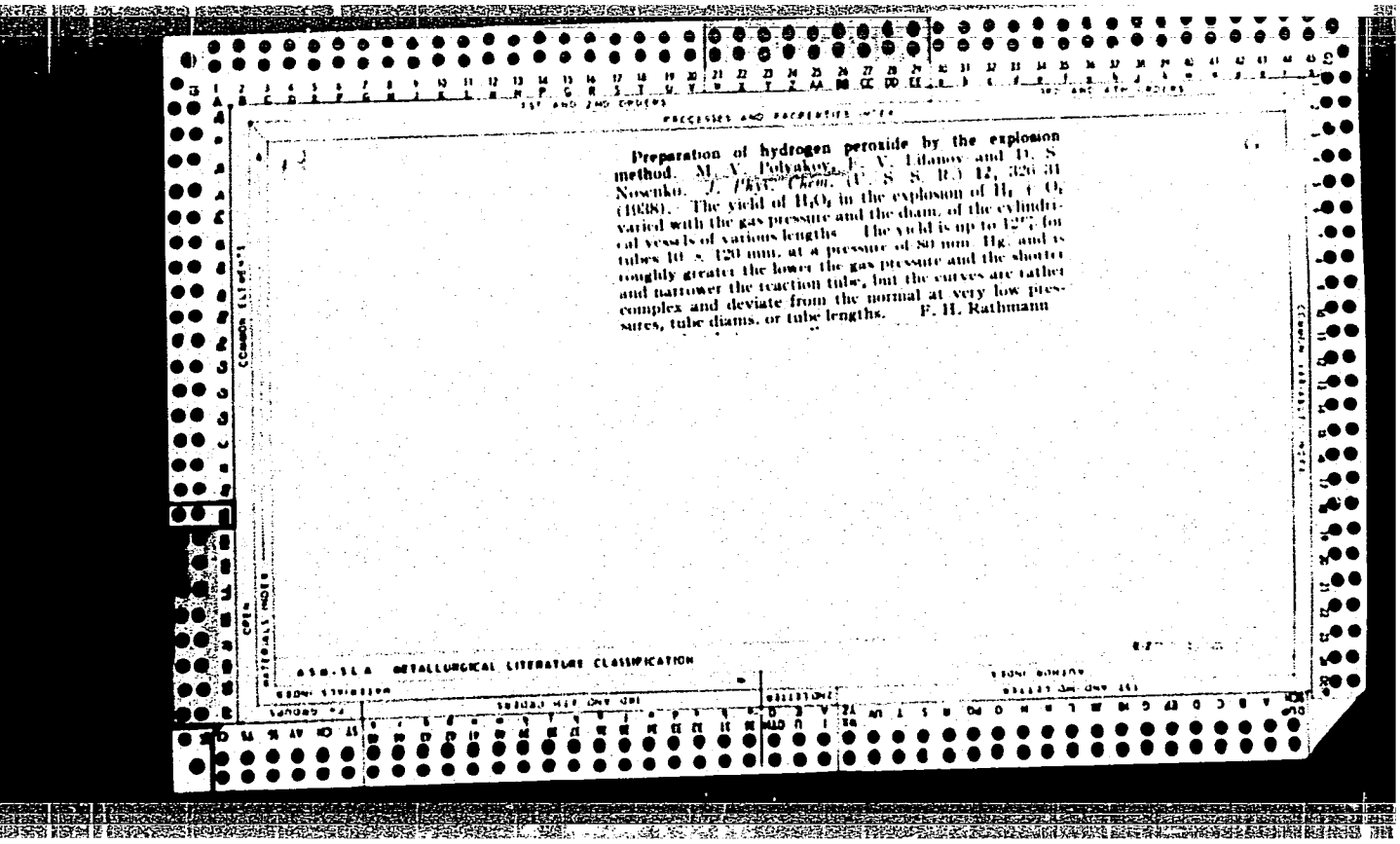
Problem of the mechanism of the formation of peroxides and aldehydes in the explosive oxidation of ethylene M. V. Polyakov and F. M. Valushtein. *J. Phys. Chem.* (U. S. S. R.) **12**, 137–9(1938).—Data are given on the yields of products obtained when C_2H_4-O_2 mixts. are exploded at various pressures in vessels with the walls cooled to from 233° to 263°K. The yields of peroxide are given by the equations $a = K_1/p^2$ at 50–70 mm. Hg, and $(a_1 - a_0)/(T_1 - T_0) = K_2$. P. and V. assume that a peroxide first forms on the cold walls, and that the aldehyde is formed by decompn. of the former. F. H. Rathmann

10

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Preparation of hydrogen peroxide by the explosion method. M. V. Polyakova, I. V. Lilanov and D. S. Nosenko. *J. Phys. Chem.* (U. S. S. R.) 12, 326-31 (1938). The yield of H_2O_2 in the explosion of $H_2 + O_2$ varied with the gas pressure and the diam. of the cylindrical vessels of various lengths. The yield is up to 12% for tubes 10 × 120 mm. at a pressure of 80 mm. Hg, and is roughly greater the lower the gas pressure and the shorter and narrower the reaction tube, but the curves are rather complex and deviate from the normal at very low pressures, tube diams. or tube lengths. F. H. Rathmann

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